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Airline	25GSE-3065A Tel. Rec.	193-2
Crosley	EU-17COL, COLB, TOLa, TOLB (Ch. 385), EU-21COLBd, COLd (Ch. 386), COLe, COLBe (Ch. 387), EU-21TOL, TOLB (Ch. 386) Tel. Rec.	193-3
Firestone	13-G-51, 13-G-52 (Code 307-1-9202A, AA, B, BA) Tel. Rec.	193-4
Motorola	TK-17M, TK-19M, TK-20M, TK-22M, TK-23M, TK-24M UHF Conv.	193-5
Philco	53-700, 53-700-I, 53-701, 53-701-I	193-6
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RCA Victor	17T200, 17T201, 17T202, 17T211, 17T220 (Ch. KCS72), 21T208, 21T217, 21T218, 21T227, 21T228, 21T229 (Ch. KCS72A) Tel. Rec. Prod. Chg. Bul. 59	193-1
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Westinghouse	H-730C21, H-732C21, H-733C21 (Ch. V-2218-11) Tel. Rec. Prod. Chg. Bul. 59	193-1

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DENVER, COLORADO

SILVERTONE MODEL 2195-21
(Ch. 100.208-1 & Radio Ch. 100.202-1)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 165

Ch. 100.202-1 100.208-1 488.216	Silvertone Model 2195-21 uses TV Ch. 100.208-1, Radio Ch. 100.202-1 and Record Changer Ch. 488.216. TV Ch. 100.208-1 is electrically identical to Ch. 100.208 covered in Photofact Folder 12 in Set 165 and Radio Ch. 100.202-1 is electrically identical to Ch. 100.201, covered in Photofact Folder 10 in Set 162 except a common 12 inch PM speaker (part #W505512 is used). A junction box and selector switch were also added to facilitate switching the speaker and power line from Television to Radio & Phono operation. A partial drawing showing the switching arrangement is given on reverse side. For service information on the Record changer (Ch. 488.216) refer to V-M Model 950 in Photofact Folder 13 in Set 107 or Record Changer Manual CM-3.
Ch. 100.202-1 Coded "Series A"	To insure proper centering without introducing neck shadow, the yellow lead of the focus coil was disconnected from the 300 volt supply and reconnected to pin 7 of the deflection yoke socket.
Ch. 100.208-1 Coded "Series A"	To reduce hum, a .01MFD capacitor was added from one side of the AC line to ground.

(Continued on Reverse Side)

TRUETONE MODEL 2D1230B

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET #185

Chassis Coded 2434 & up	In order to correct unstable vertical hold in Truetone Model 2D1230B, the following changes were made in later production. This change is included in all chassis code dated 2434 and later. The code date is stamped on the center rear of the chassis. The 6BL7GT vertical oscillator and output tube (V16) was changed to a 6SN7GTA tube. R84, B+ dropping resistor, was changed from 15K, 2watts, to 6800Ω, 2 watts. R82, vertical output cathode resistor, was changed from 1500Ω to 820Ω. R83, vertical output grid resistor, was changed from 1 meg to 2.2meg. In some sets R77 may be 1.8 meg instead of 1.5 meg. In early production, vertical output transformer, part #51X159, was used, and R84 was 3300Ω. If the above change is made in the field when vertical instability can not be remedied by replacing 6BL7 tube, or its related components, the vertical output transformer should be replaced with part #51X156.

RCA VICTOR MODELS 17T200, 17T201, 17T202, 17T211, 17T220(Ch. KCS72), 21T208, 21T217, 21T218, 21T227, 21T228, 21T229(Ch. KCS72A)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 184

Ch. KCS72, KCS72A	In later production of RCA Chassis KCS72 and KCS72A the following changes were made in the order given. 1. R51, Brightness Control Bleeder Resister was changed from 100KΩ to 56KΩ. 2. A 4700MMF capacitor was added from Pin 2 (Cathode) of the second Video IF Amp. (V4) to ground. 3. The Video Amplifier Tube (V7) was changed to a type 6CL6 or 6AG7 tube. When this change was made, R41, V6 plate resistor was removed from the junction of R29 and R30 and reconnected to the junction of R29 and R67.

(Continued on Reverse Side)

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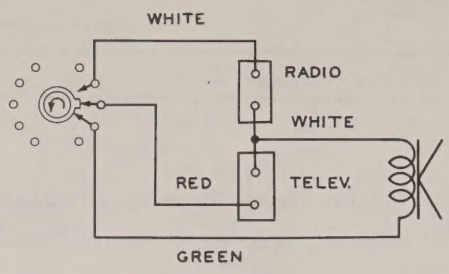

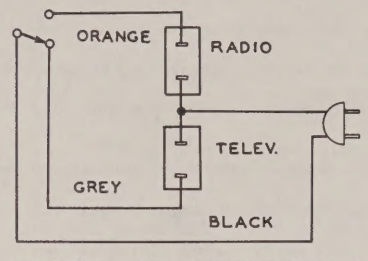

RADIO - TV SELECTOR SWITCH SHOWN IN TV POSITION

SILVERTONE MODEL 2195-21
(Ch.100.202-1,100.208-1,488.216)

4. R44, Video Amp. Screen Resistor, was changed from 47KΩ to 39KΩ. The values of the Video Amp. Plate Load Resistors were changed as follows: R45 from 3300Ω to 2200Ω, R46 from 47KΩ to 18KΩ, R47 from 12KΩ to 15KΩ, and Peaking Capacitor, C47 was changed from 120MMF to 270MMF. R41, V9 Plate Resistor, was changed from 220KΩ to 2.2Meg and the end previously connected to the junction of R29 and R64 was reconnected to the junction of R110 and R111 in the grid circuit of the Horizontal Output Tube (V18).

R50, Brightness Control Bleeder Resistor, was changed from 100KΩ to 150KΩ. R51 was omitted and terminal #1 of the Brightness Control (R2) was returned to ground.

RCA VICTOR MODELS 17T200,17T201, 17T202,17T211,17T220(Ch.KCS72),21T208, 21T217,21T218,21T227,21T228,21T229(Ch.KCS72A)

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Ch. V-2218-11

Westinghouse Ch. V-2218-11 is used in later production of Models H-730C21, H-732C21 and H-733C21.

This chassis is identical to Ch. V-2218-1 covered in Photofact Folder 15 — Set 190 except a new RF Tuner (Part #V-11333-1) and other minor changes are used.

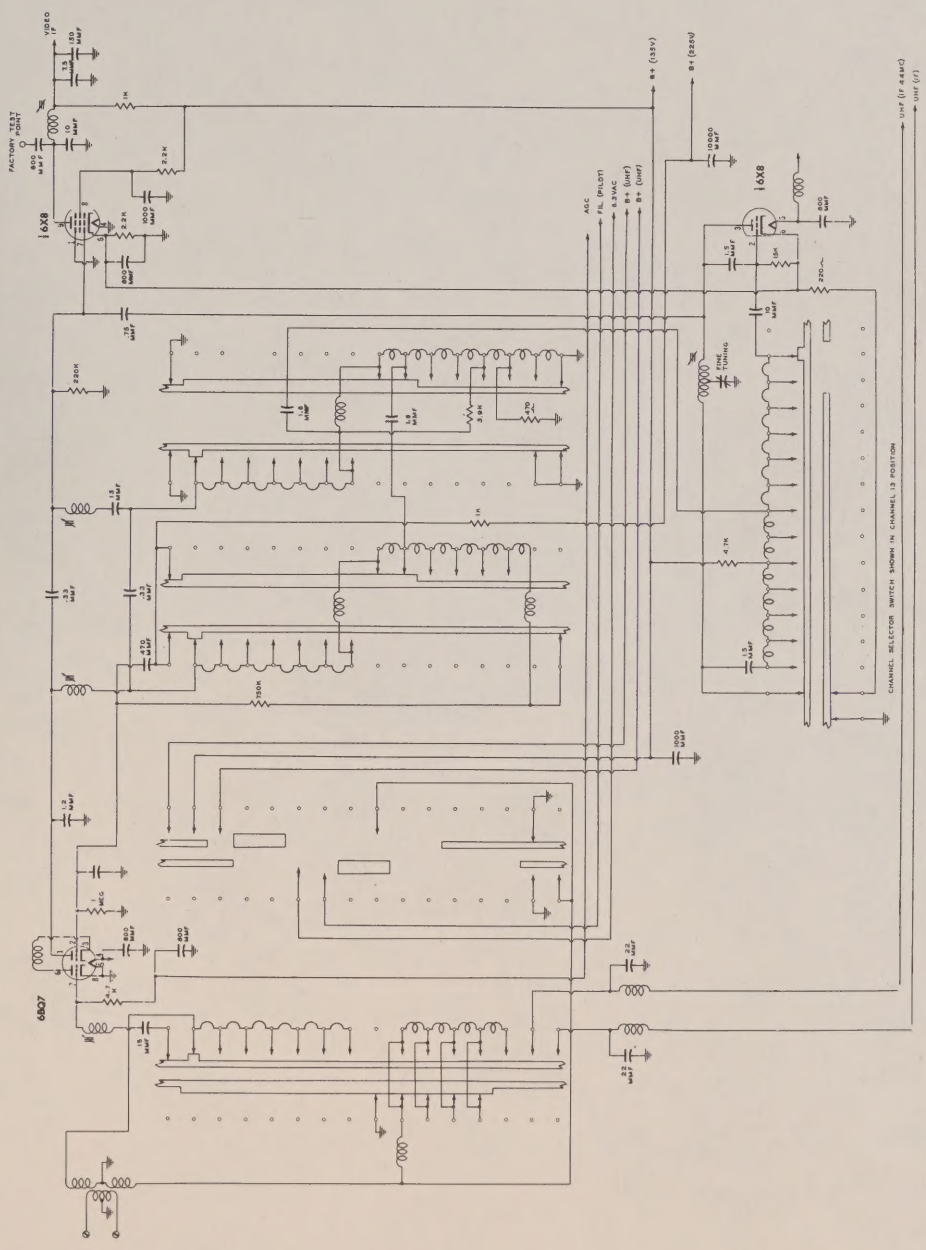
Terminal #10 of the tuner is connected to a 225 volt source rather than to the UHF socket. To provide the 225 volt source, a 5600Ω, 2 watt, resistor and a 33K, $\frac{1}{2}$ watt, resistor in parallel are connected between the 320 volt B+ line in the sweep chassis and terminal #10.

A .005MFD capacitor is connected between terminal #10 of the tuner and ground.

A schematic of the new RF Tuner is given below.

In addition to the above, C34, located between the bottom of L15 and ground, has been omitted and L15 has been changed to part #V-9882-6.

C73 and R56 located at the diode (Pin 6) of the 6T8 1st. Audio Amp. have been omitted and Pin 6 is connected to ground.



PHOTOFACT* Folder

*TRADE MARK

AIRLINE
MODEL 25GSE-3065A

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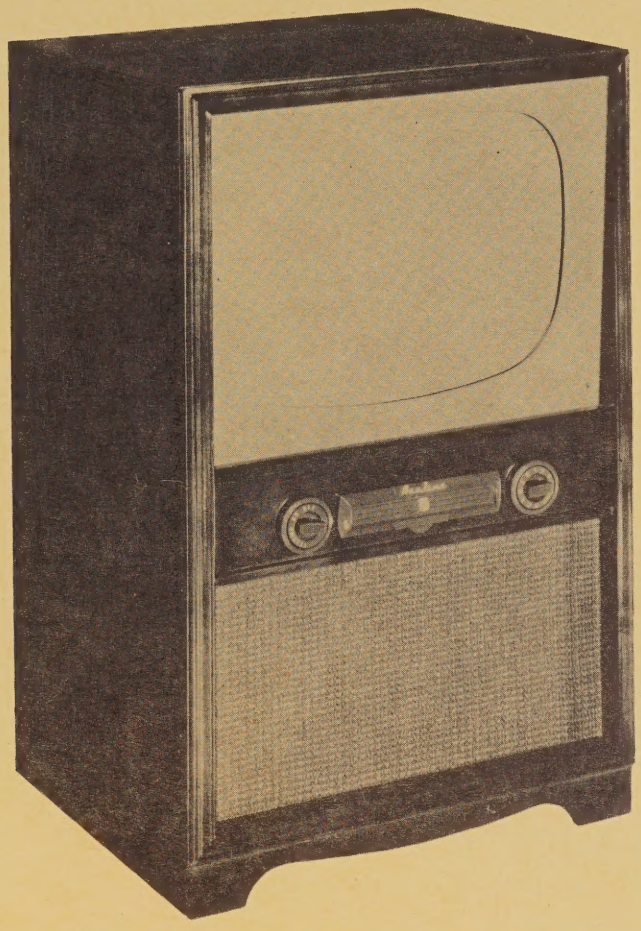

MODEL 25GS-3065A

AIRLINE
MODEL 25GSE-3065A

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DATE 2-53 SET 193 FOLDER 2

PHOTOFACT* Folder
*TRADE MARK

AIRLINE
MODEL 25GSE-3065A

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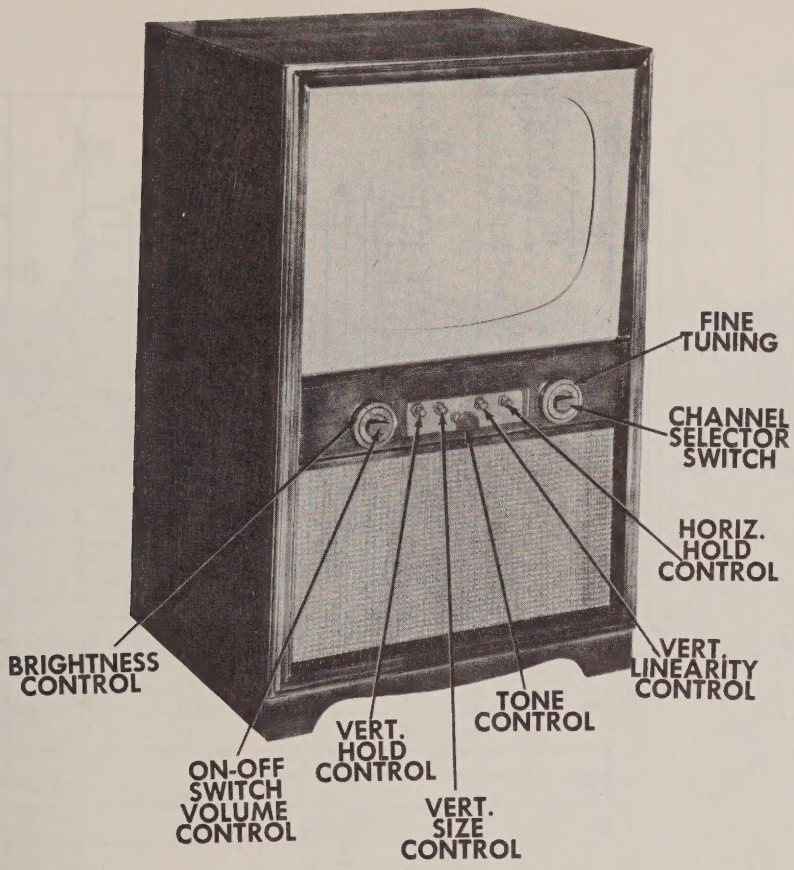

TRADE NAME	Airline Model 25GSE-3065A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Ill.
TYPE SET	Television Receiver
TUBES	Twenty-Three
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.88 Amp @ 117 Volts AC
TUNING RANGE-	Channels 2 Thru 13

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AIRLINE
MODEL 25GSE-3065A

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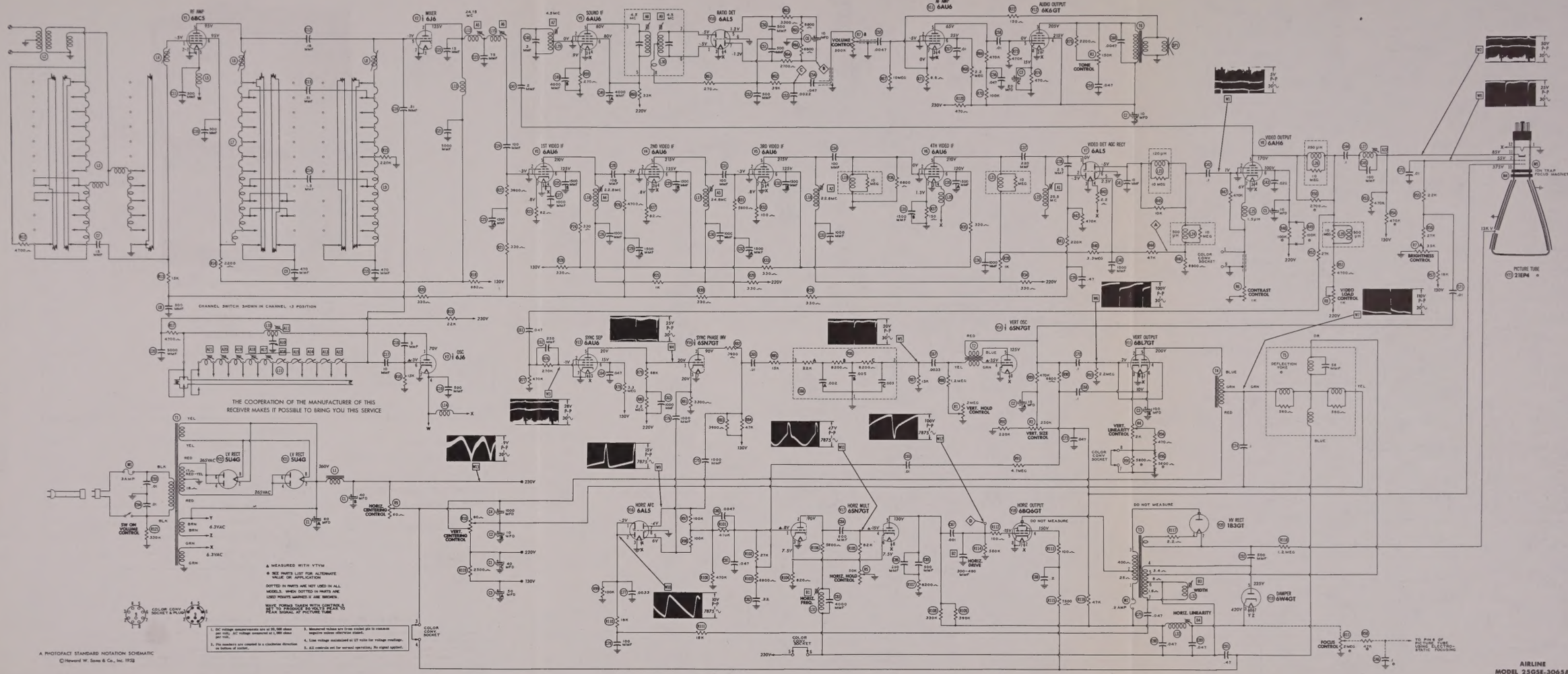
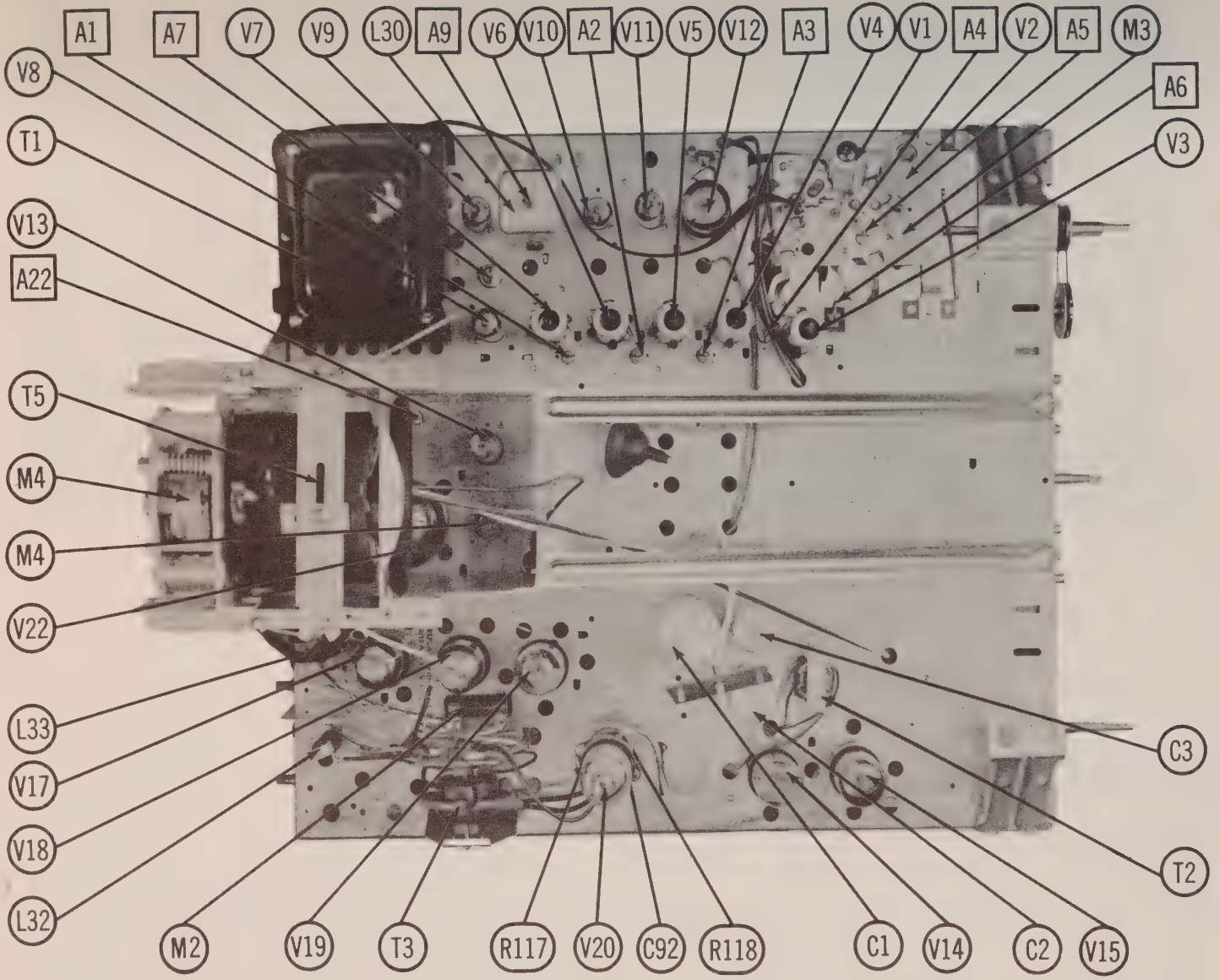
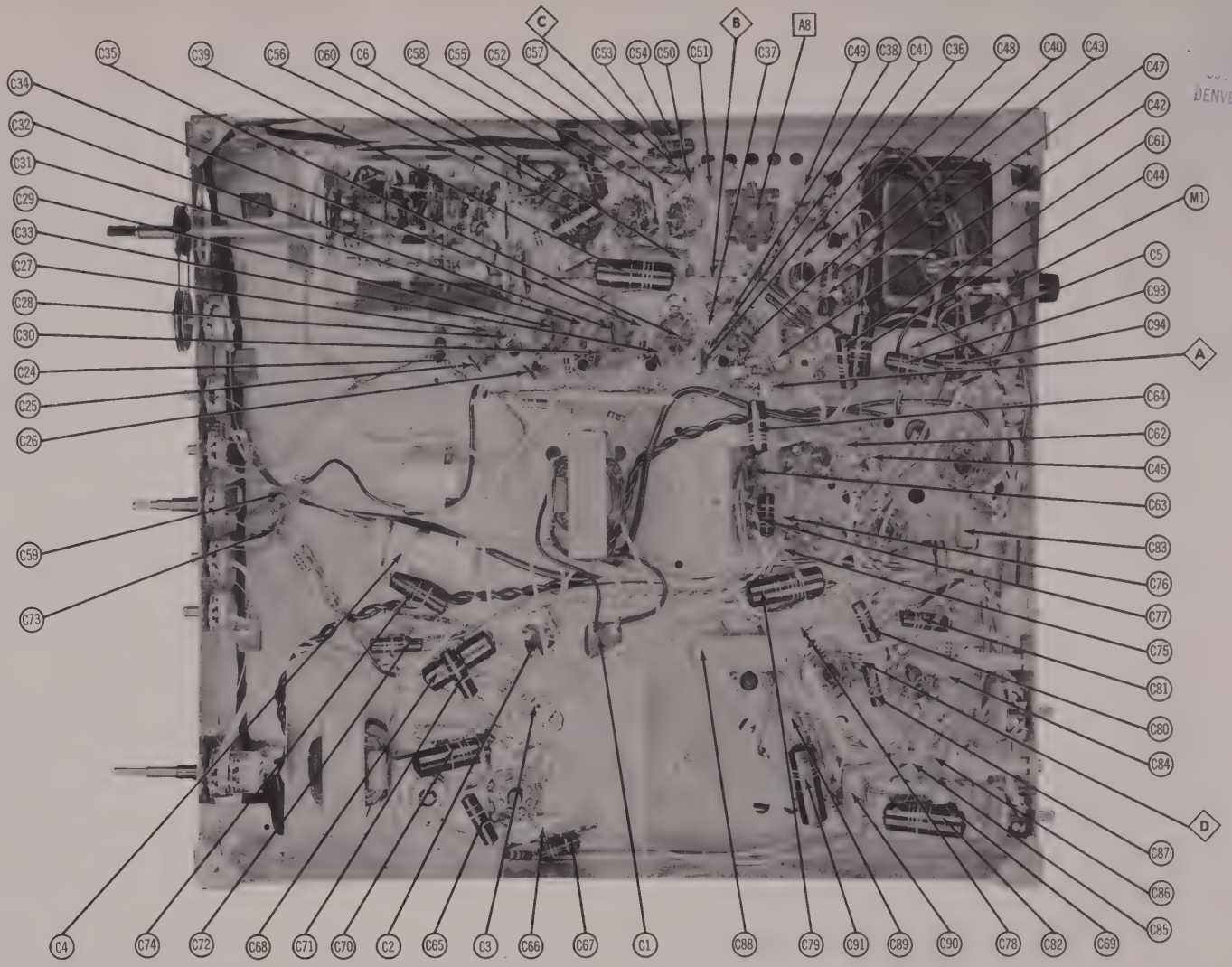
DATE 2-53 SET 193 FOLDER 2


AIRLINE
MODEL 25GSE-3065A
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SWITCH SHOWN IN CHANNEL 13 POSITION
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1958
AIRLINE
MODEL 25GSE-3065A



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

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TUBE PLACEMENT CHART

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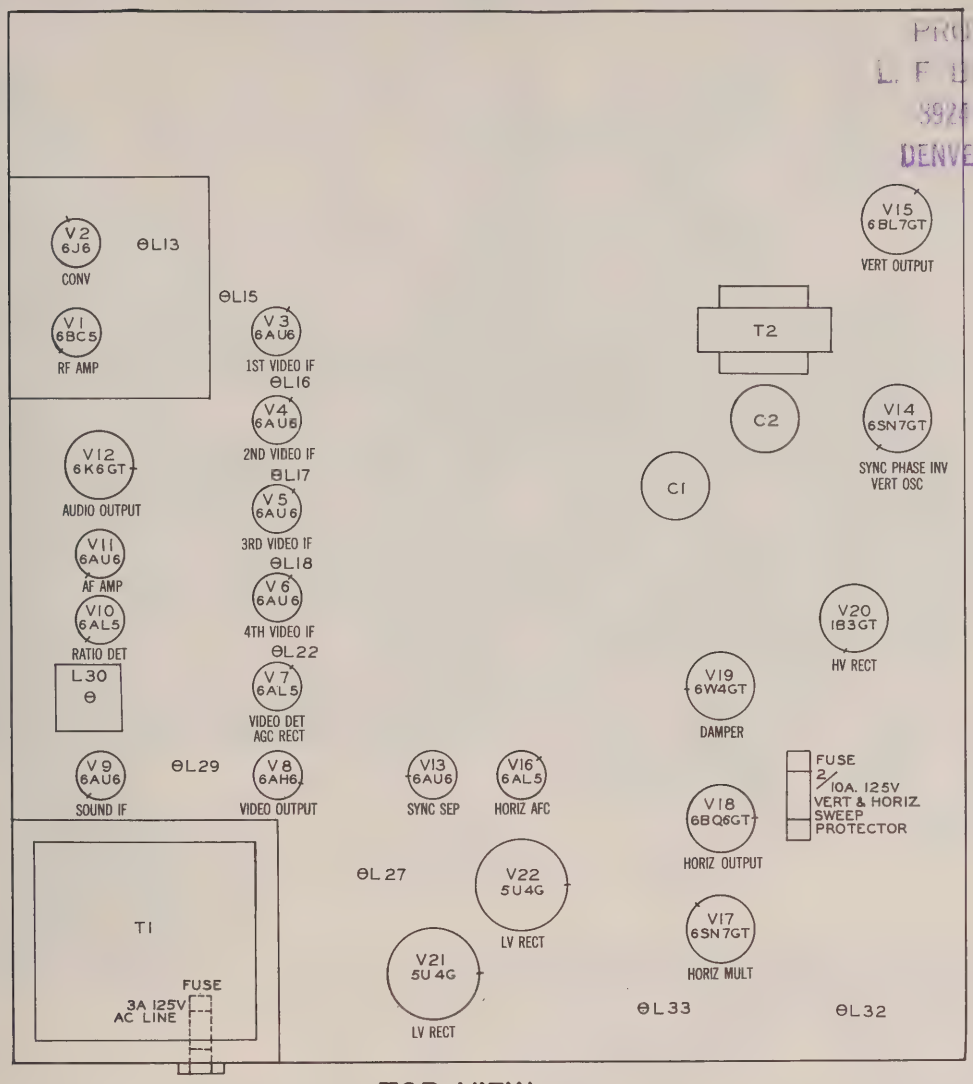


TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound -V21, V22, Fuse (M1)

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6, V7, V8
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V8, V23
Has Pic, No Sound - V9, V10, V11, V12
Overloaded Picture - V7

SYNC FAILURE
No Vert. Sync - V14
No Horiz. Sync - V14, V16, V17
No Vert. or Horiz. Sync - V13, V14

SWEEP FAILURE
No Raster, Has Sound - V17, V18, V19, V20, V23 , Fuse (M2)
No Vertical Deflection - V15
Poor Vert. Linearity or Foldover - V14, V15
Poor Horiz. Linearity or Foldover - V17, V18, V19
Narrow Picture - V17, V18, V19, V21, V22
Vert. Off Freq. - V14
Horiz. Off Freq. - V14, V16, V17

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C39. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25.5MC (Unmod.)	Any	DC probe to point ◇A. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	22.8MC	"	"	A2	"
3.	"	"	24.6MC	"	"	A3	"
4.	"	"	22.8MC	"	"	A4	"
5.	"	"	24.75MC	"	"	A5	Detune L15 by turning A6 into center of coil, then adjust A5 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24MC (10MC Swp)	22MC 23MC 25.5MC	Any	Vert. amp. to point ◇A. Low side to chassis.	A6	Adjust A6 so that the 25.5MC marker is at approximately 50% of response. If necessary retouch A1 through A5 for proper response as per fig. 1.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to pin 1 (grid) of 6AH6 (V8). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point ◇B. Common to chassis.	A7, A8	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point ◇C. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 1 (Grid) of 6AH6 (V8). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point ◇B. Low side to chassis.	A7, A8	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
8.	"	"	"	"	"	Vert. amp. to point ◇C. Low side to chassis.	A9	Reconnect capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

A10 is an all channel oscillator circuit adjustment and should be adjusted if the majority of channels appear to be off frequency approximately the same amount in the same direction. All through A21 are individual channel oscillator circuit adjustments and are accessible through numbered holes in the front of the tuner. All serves both channels 13 and 12 and is aligned for which ever channel is in use locally.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213.MC (10MC Swp)	211.25MC	13	Vert. amp. to point ◇A. Low side to chassis.	A11	Adjust to place video marker at 50% on response curve as per fig. 4. If any channel adjustmenthas insufficient range make slight compromise adjustment of A10, then recheck all other channels.
			207MC (10MC Swp)	205.25MC	12		A11	
			201MC (10MC Swp)	199.25MC	11		A12	
			195MC (10MC Swp)	193.25MC	10		A13	
			189MC (10MC Swp)	187.25MC	9		A14	
			183MC (10MC Swp)	181.25MC	8		A15	
			177MC (10MC Swp)	175.25MC	7		A16	
			85MC (10MC Swp)	83.25MC	6		A17	
			79MC (10MC Swp)	77.25MC	5		A18	
			69MC (10MC Swp)	67.25MC	4		A19	
			63MC (10MC Swp)	61.25MC	3		A20	
			57MC (10MC Swp)	55.25MC	2		A21	

4.5MC TRAP ALIGNMENT

Turn the set on and tune in a TV station.
Examine the picture for evidence of 4.5MC beat pattern. If necessary adjust A22 for minimum 4.5MC interference.

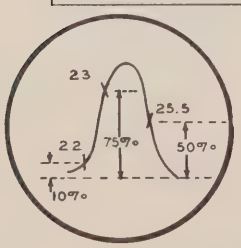


FIG. 1

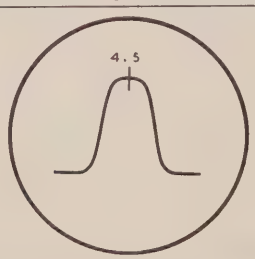


FIG. 2

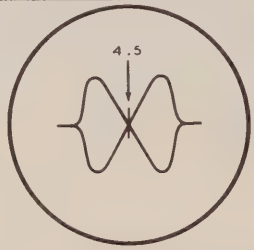


FIG. 3

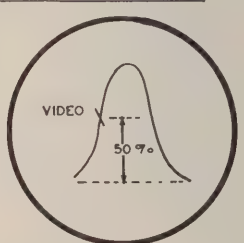
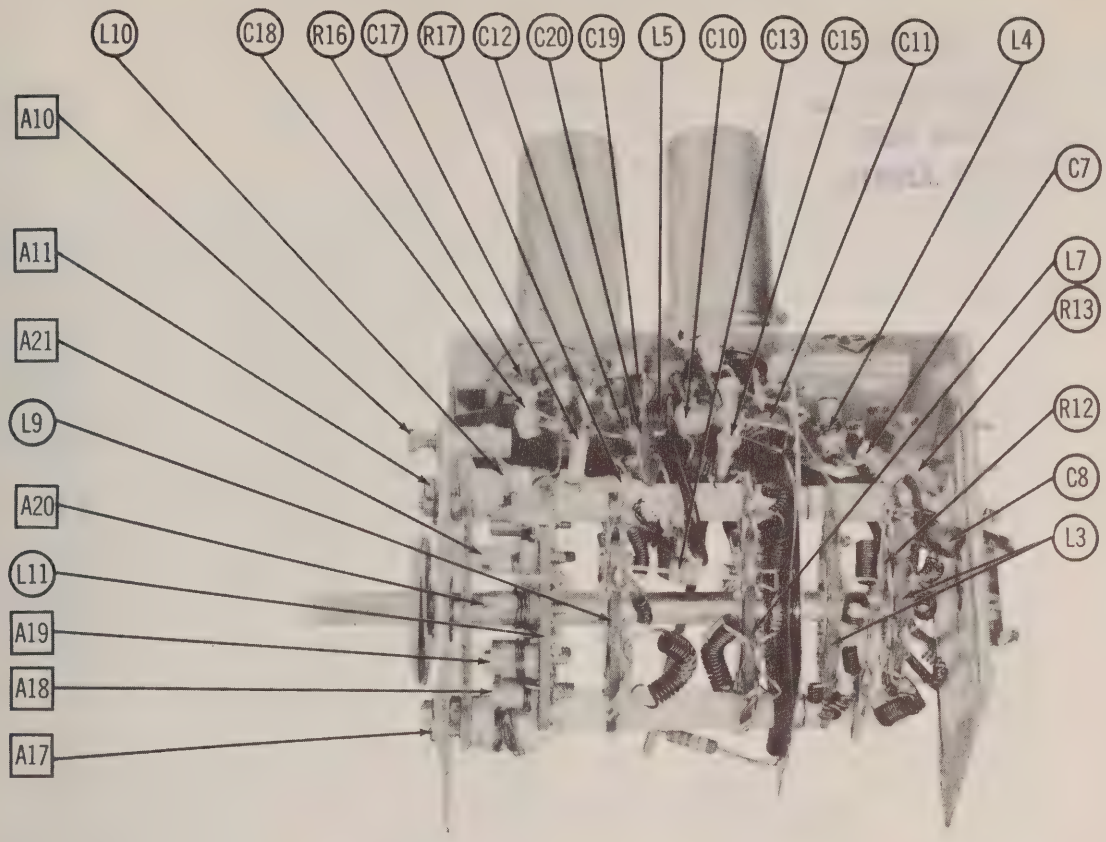
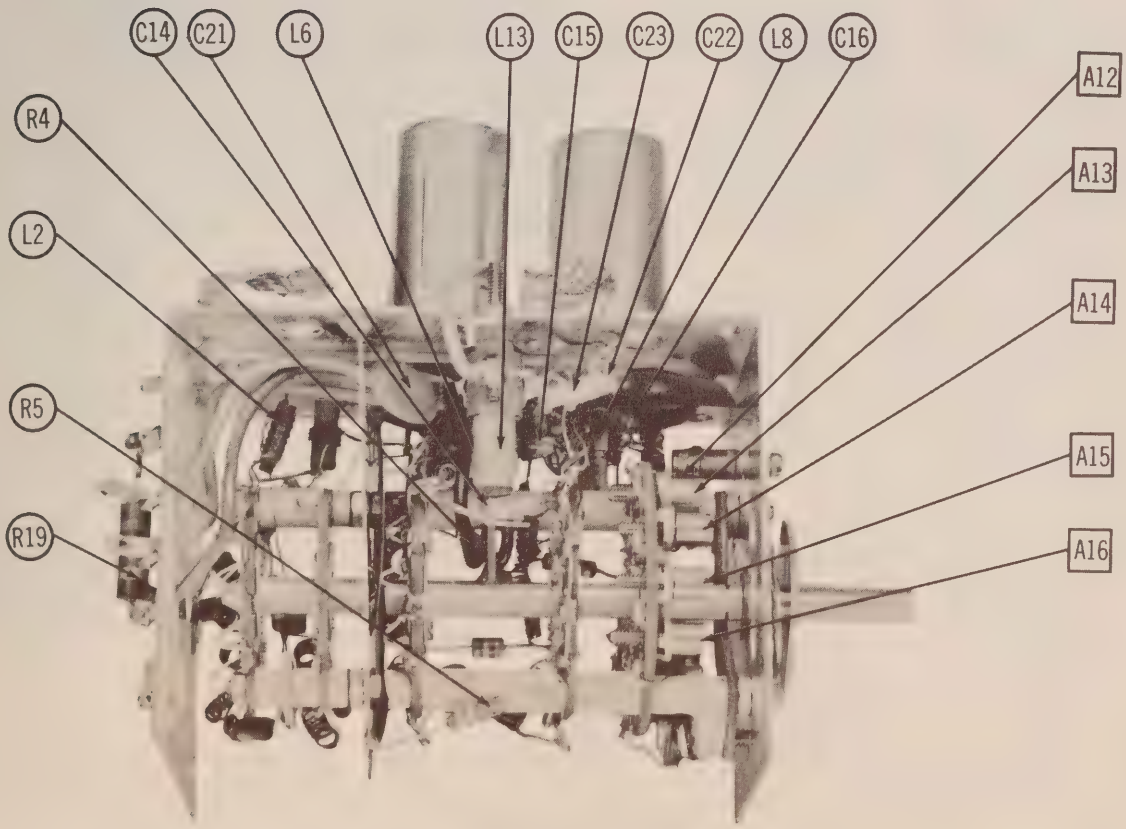


FIG. 4



RF TUNER-RIGHT SIDE

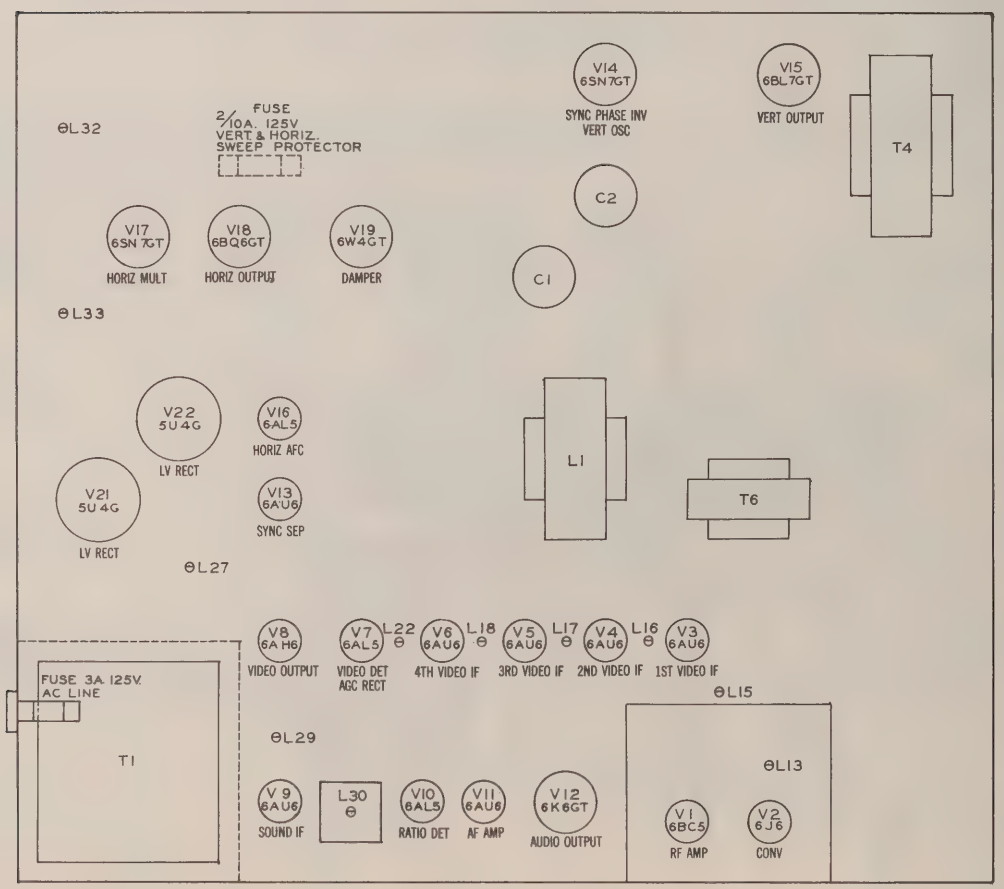


RF TUNER-LEFT SIDE

RESISTANCE MEASUREMENTS

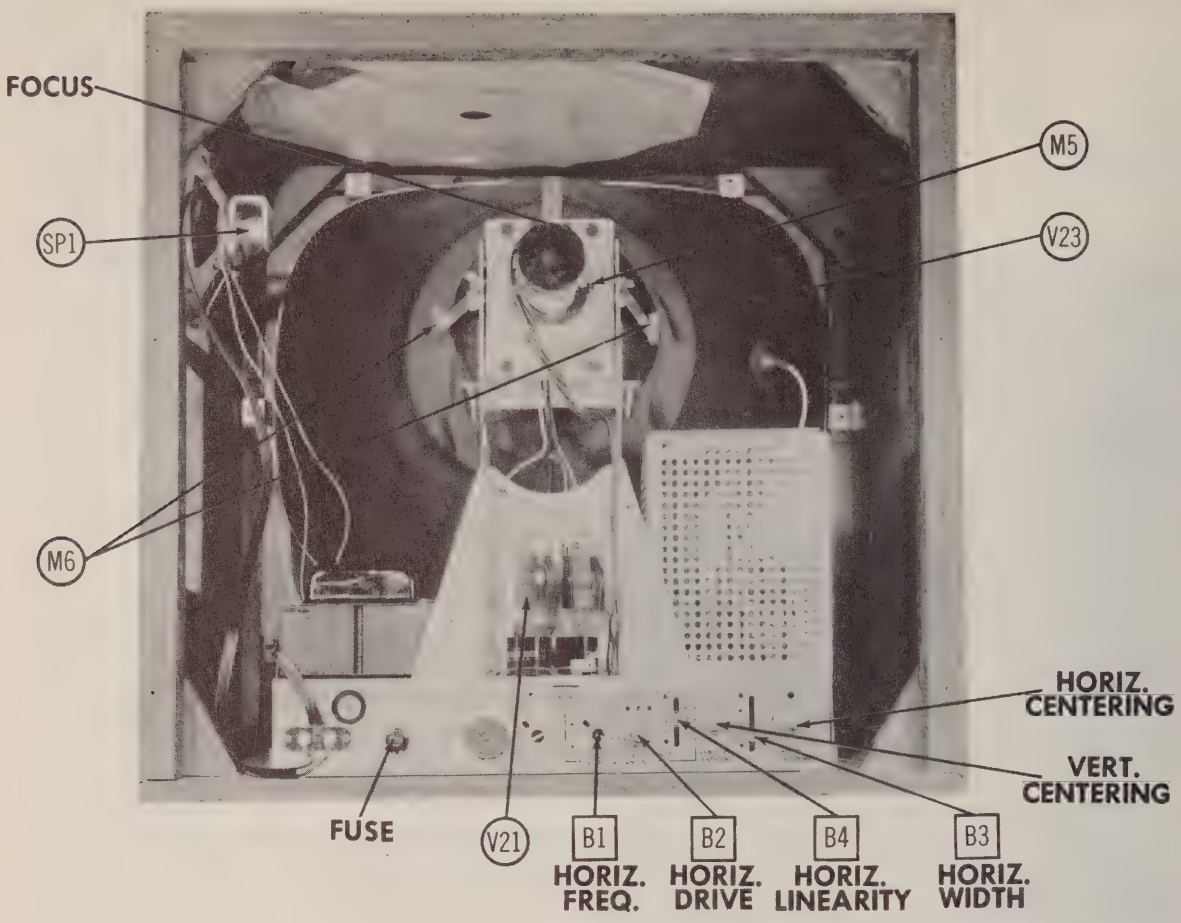
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	700KΩ	0Ω	.1Ω	0Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 2	6J6	†27KΩ	†3.3KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6AU6	695KΩ	0Ω	0Ω	.1Ω	†1.5KΩ	†3.3KΩ	82Ω		
V 4	6AU6	695KΩ	0Ω	0Ω	.1Ω	†510Ω	†3KΩ	82Ω		
V 5	6AU6	695KΩ	0Ω	0Ω	.1Ω	†510Ω	†3.3KΩ	100Ω		
V 6	6AU6	3.4Ω	0Ω	0Ω	.8Ω	†1.5KΩ	†3.6KΩ	150Ω		
V 7	6AL5	.1Ω	470KΩ	0Ω	1.5Ω	53KΩ	0Ω	6.8KΩ		
V 8	6AH6	470KΩ	0Ω	0Ω	.1Ω	†5.5KΩ	†50KΩ	390Ω		
V 9	6AU6	.8Ω	0Ω	0Ω	.1Ω	†33KΩ	†33KΩ	270Ω		
V 10	6AL5	INF	INF	0Ω	.1Ω	10KΩ	0Ω	9.5KΩ		
V 11	6AU6	10Meg	0Ω	0Ω	.1Ω	†570KΩ	†2.2Meg	6.8Ω		
V 12	6K6GT	INF	0Ω	†1KΩ	†565Ω	470KΩ	†100KΩ	.1Ω	470Ω	
V 13	6AU6	740KΩ	0Ω	.1Ω	0Ω	†2.3Meg	†3.3Meg	0Ω		
V 14	6SN7GT	†2.3Meg	†10KΩ	3.3KΩ	2Meg	#625KΩ	0Ω	0Ω	.1Ω	
V 15	6BL7GT	2.2Meg	†950Ω	400Ω	2.2Meg	†950Ω	400Ω	.1Ω	0Ω	
V 16	6AL5	100KΩ	100KΩ	0Ω	.1Ω	570KΩ	0Ω	570KΩ		
V 17	6SN7GT	940KΩ	†5.8KΩ	820Ω	110KΩ	#180KΩ	820Ω	0Ω	.1Ω	
V 18	6BQ6GT	INF	.1Ω	†7.7KΩ	†7.6KΩ	560KΩ	560KΩ	0Ω	0Ω	TOP CAP #42Ω
V 19	6W4GT	INF	INF	300KΩ	INF	†110Ω	INF	†.2Ω	†0Ω	
V 20	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #442Ω
V 21	5U4G	INF	40KΩ	INF	18Ω	INF	18Ω	INF	40KΩ	
V 22	5U4G	†.2Ω	40KΩ	INF	17Ω	INF	17Ω	INF	40KΩ	
V 23	21EP4	0Ω		60KΩ	PIN 10 #47KΩ	PIN 11 250KΩ	PIN 12 .1Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PINS 2 OF V21 & V22
# MEASURED FROM PIN 3 OF V19



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the mid-position of its range. Adjust the horizontal lock slug (B1) until the picture is synchronized horizontally.

The picture should now lock in evenly from either side of the mid-position of the horizontal hold control.

If necessary, slightly retouch B1 for this condition.

Connect the D.C. probe of a VTVM to point D (to be found on top rear of chassis) and connect the common lead to chassis.

Adjust the horizontal drive trimmer (B2) for a voltage of -28 volts.

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask horizontally.

To set the horizontal linearity control turn the set off, discharge the picture tube capacity to eliminatel the shock hazard, and remove the fuse in the high voltage compartment.

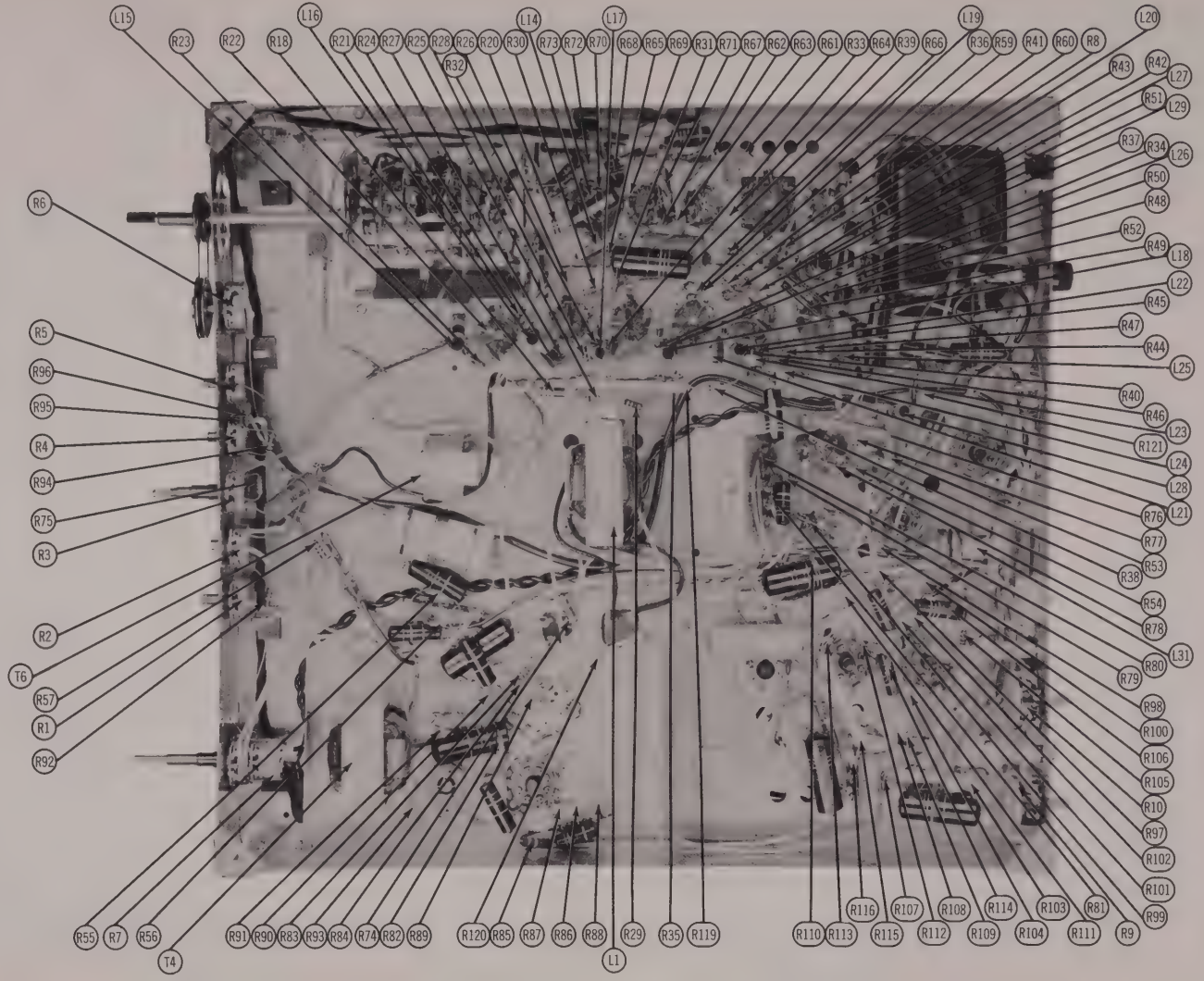
Connect a D.C. milliameter across the fuse holder terminals, using the 150ma. scale.

Turn the set on and adjust the horizontal linarity slug (B4) for MINIMUM current indication on the meter.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 11 wood screws & 1 metal screw. Remove rear cover.
3. Disconnect speaker leads & built in antenna.
4. Remove 4 speaker nuts. Remove speaker.
5. Remove 5 chassis bolts. Remove chassis.

Note: FOR PICTURE TUBE REMOVAL IT IS NECFSSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp	6AU6	6AU6	7BK	
V6	4th. Video IF Amp.	6AU6	6AU6	7BK	
V7	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V8	Video Output	6AH6	6AH6	7BK	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector	6AL5	6AL5	6BT	
V11	AF Amplifier	6AU6	6AU6	7BK	
V12	Audio Output	6K6GT	6K6GT	7S	
V13	Sync Separator	6AU6	6AU6	7BK	
V14	Sync Phase Inv.-Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V15	Vert. Output	6BL7GT	6BL7GT	8BD	
V16	Horiz. AFC	6AL5	6AL5	6BT	
V17	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V18	Horiz Output	6BQ6G	6BQ6G	6AM	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	
V22	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V23A	21EP4	21EP4	12D	① Circuit changes necessary
		21EP4A ①	12D	
		21FP4 ①	12C	
		21FP4A ①	12C	
B	17RP4	17RP4	12C	
C	17HP4A		12C	
		17HP4	12C	
D	24BP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR LINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	±60	350	25E59	AFH4-103		UPT429		FP430.9	TVL-4720	
B	±40	350								
C	±40	350								
C2A	±10	450	25E61	AFH3-51		UP1145		FP375.8	TVL-3776	
B	10	300								
C	±10	300								
C3A	±50	150	25E60	AFH3-82		UP4015V2			TVL-3417	
B	±100	50				BRH501			TVA-1310	
C	20	25								
C4	1000	3	25R50	PR86/1000		BRH610		TC310	TVA-1104	
C5	10	250	25E35	PRS250/12		BR1225A		TC52	TVA-1504	
C6	10	25	25E8	PRS25/10		BR102A		TC22	TVA-1204	
C7	15		ST-226	SI15	D8-150		GP1K-150	UC-5415	5GA-Q15	
C8	500		ST-231	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C9	470		ST-233	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C10	500		ST-231	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C11	500		ST-231	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C12	.16		ST-224							
C13	.51		ST-229							
C14	1.5		ST-209	SIL-5NP0	TCZ-1.5		NP0K-1R5	Z7-5515	5TCCB-V15	
C15	470		ST-232	SI470	D6-471		GP2K-471	UC-5347	5GA-T47	
C16	.51		ST-229							
C17	10		ST-228	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C18	3		ST-207				N330K-030			
C19	500		ST-231	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C20	5000		ST-211	BPD-005	DD-502	TM5D5	SI1-005	DC-525	5HK-D5	
C21	5000		ST-211	BPD-005	DD-502	TM5D5	SI1-005	DC-525	5HK-D5	
C22	15		ST-226	SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C23	75		ST-227	SI75	D6-750	TM5Q75	GP1K-750	UC-5475	5GA-Q75	
C24	100		23E2027-2	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C25A	3500		23E2037-5	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C26	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C27	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C28	100		23E2027-2	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C29A	1500		23E2037-5	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C30	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C31	100		23E2027-2	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C32A	1500		23E2037-5	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C33	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C34	100		23E2027-2	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C35A	1500		23E2037-5	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C36	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C37	330		23E2037-6	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C38	25		23E26				N750K-250			
C39	.47	200	23E3220	P288-47		PJ2P5		PT405	2TM-P47	
C40	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C41	10		23E25	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C42	.1	200	23E3216	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C43	.022	400	23E3412	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C44	.1	400	23E3416	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C45	100		23E3	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C46	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	Note 1
C47	2		23E21				N750K-030			
C48	3		23E13							

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR LINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C49A	4000		23E2037	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524	SHK-2D4	
B	4000				D6-402					
C50	500	500	23E45-10	1468-0005	D6-501	5W5T5	GP2K-501	MC245	1FM-35	
C51	500	500	23E45-10	1468-0005	D6-501	5W5T5	GP2K-501	MC245	1FM-35	
C52	500	500	23E45-10	1468-0005	D6-501	5W5T5	GP2K-501	MC245	1FM-35	
C53	.0022	400	23E3206	[illegible]	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C54	.047	200	23E3214	P288-047	DF-503	PTE4S47		PT4147	4TM-S47	
C55	.0047	400	23E3208	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C56	.047	400	23E3414	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C57	.01	600	23E3610	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C58	.01	600	23E3610	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C59	.047	600	23E3614	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C60	.0047	600	23E3608	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C61	.047	400	23E3614	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C62	250		23E2030-3	SI250	D6-251	TM5T25	GP2K-251	UC-5325	5GA-T25	
C63	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C64	.047	400	23E3414	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C65	.01	600	23E3410	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C66A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005		+23E2023-4	P688-005	+PC-100	PTE6D5	GP2-333-502	PT625	+101C1	
C	.005			P688-005		PTE6D5	GP2-333-502	PT625		
C67	.0033	400	23E3407	P688-0033	D6-332	PTE6D33	GP2-333-332	PT6233		
C68	.1	600	23E3106	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C69	.01	600	23E3410	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C70	.1	600	23E3610	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C71	.01	600	23E3610	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C72	.01	600	23E3610	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C73	.047	600	23E3614	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C74	.1	400	23E2416	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C75	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C76	1000		23E2025-3	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C77	.0033	400	23E3407	P488-0033	D6-332	PTE4D33	GP2-333-332	PT6233	6TM-D33	
C78	100		23E2027-2	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C79	.047	1000	23E3104	PI088-047				PT6145	MB-S5	
C80	.0047	400	23E3206	P488-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C81	.047	200	23E3214	P288-047	DF-503	PTE4S47		PT4147	4TM-S47	
C82	.22	200	23E3218	P488-22		PTE4P22		PT4025	2TM-P22	
C83	4000	500	23E85	1464-004		1DR5D4		MCB463		
C84	600		23E2030-13						MS-36	
C85	500		23E2030-9	1469-0005		5R5T5		MCB245	MS-35	
C86	250		23E2030-3	1469-00025		5R5T25		MCB240		
C87	.001	600	23E3604	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C88	.2	400	23E3418	P488-22		PTE4P22		TP429	2TM-P22	
C89	.047	600	23E3614	P688-047		PTE6S47		PT6147	6TM-S47	
C90	.047	600	23E3614	P688-047		PTE6S47		PT6147	6TM-S47	
C91	.47	200	23E3220	P288-47		PJ2P5		PT405	2TM-P47	
C92	500	20000	23E2039	HV20C	TV3-502	MM-C20T5	413-501		20DK-T5	
C93	.01	600	23E3610	889ZGXY-01		PJ6S1		PT611	6TM-S1	
C94	.01	600	23E3610	889ZGXY-01		PJ6S1		PT611	6TM-S1	

Note 1. Used with Electrostatic focus only. Some models use .047MFD (Part #23E3616) * Items C66A, C66B, C66C, R66A, R66B, R66C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	28E72	QII-139	AG-83-S	AB-75	SU-56	Vert. Hold
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R1A
R2A	250KΩ	½	28E79	QII-130	AG-55-S	AB-50	SU-46	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	150KΩ	½	28E75		AG-51-Z		U-42	Tone
B	Shaft		Not Req.		KSS-3		Not Req.	Attach to R3A
R4A	2000Ω	½	28E80	QII-110	AG-11-S	AB-6	R2500L	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	DS-36	Attach to R4A
R5A	50KΩ	½	28E43	QII-123	AG-44-S	AB-31	SU-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1000Ω	½	[illegible]	QII-108	AM-8-S	AB-5	R1000L	Contrast
B	Shaft		Not Req.	Not Req.	RS-2	AK-8	DS-36	Attach to R6A
R7A	35KΩ	[illegible]	28E64-3	Q2-229 *	RTV-248	SBB-658-S	UF54L	Brightness - Panel
B	500KΩ	[illegible]					UR35A	Volume - Rear
C	Switch		Not Req.				US-26	Attach to R7B
R8	1000Ω	1	28E81					Video Output Plate Load -Wire Wound
R9A	60Ω	2	28E54	W-60	A43-75	VK-117	R50L	Horiz. Centering - Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R9A
R10	10Ω	2	28E78	W-75	RTV-139	C100P	R10L	Vert. Centering - Wire Wound
R11A	2Meg	½	28E72	QII-139	AG-83-S	AB-75	SU-56	Focus - See Note
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R11A

Note - Use only with Electrostatic Focus Picture Tubes.
* CONCENTRIKIT EQUIVALENT - KIT K-5, BASE ELEMENTS & SHAFTS B11-122 & P1-114 (Panel) B13-133 & R1-207 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	NOTES
R12	4700Ω	½	27E472-2	BTS-4700	
R13	15KΩ	20% ½	27E153-2	BTS-15K	
R14	2200Ω	20% ½	27E472-2	BTS-2200	
R15	220KΩ	½	27E224-2	BTS-220K	
R16	15KΩ	20% ½	27E153-2	BTS-15K	
R17	4700Ω	½	27E472-2	BTS-4700	
R18	680Ω	1	27E681-3	BTA-680	
R19	22KΩ	½	27E223-3	BTA-22K	
R20	330Ω	½	27E331-2	BTS-330	
R21	330Ω	½	27E331-2	BTS-330	
R22	3900Ω	5% ½	27E1009-43	BTS-3900 5%	
R23	82Ω	½	27E820-2	BTS-82	
R24	330Ω	½	27E331-2	BTS-330	
R25	1000Ω	½	27E102-2	BTS-1000	
R26	4700Ω	5% ½	27E1009-26	BTS-4700 5%	
R27	82Ω	½	27E820-2	BTS-82	
R28	330Ω	½	27E331-2	BTS-330	
R29	330Ω	½	27E331-2	BTS-330	

ITEM No.	RATING: OHMS	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	NOTES
R30	330Ω	½	27E331-2	BTS-330	
R31	5600Ω	5% ½	27E1009-8	BTS-5600 5%	
R32	100Ω	½	27E101-2	BTS-100	
R33	330Ω	½	27E331-2	BTS-330	
R34	330Ω	½	27E331-2	BTS-330	
R35	330Ω	½	27E331-2	BTS-330	
R36	6800Ω	5% ½		BTS-6800 5%	
R37	150Ω	½	27E151-2	BTS-150	
R38	1000Ω	½	27E102-2	BTS-1000	
R39	330Ω	½	27E331-2	BTS-330	
R40	3.3Meg	½	27E335-2	BTS-3.3Meg	
R41	220KΩ	½	27E224-2	BTS-220K	
R42	470KΩ	20% ½	27E474-2	BTS-470K	
R43	2.2Ω	½	27E015-2		
R44	47KΩ	½	27E473-2	BTS-47K	
R45	10KΩ	½	27E103-2	BTS-10K	
R46	6800Ω	5% ½	27E1009-13	BTS-6800 5%	
R47	470KΩ	20% ½	27E474-2	BTS-470K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	NOTES
R48	100KΩ	½	27E104-2	BTS-100K	Note 1
R49	100KΩ	½	27E104-2	BTS-100K	Note 2
R50	2700Ω	½	27E272-2	BTS-2700	
R51	4700Ω	2	27E1009-45	BTB-4700	
R52	27KΩ	½	27E273-2	BTS-27K	
R53	470KΩ	20% ½	27E474-2	BTS-470K	Note 3
R54	470KΩ	½	27E474-2	BTS-470K	Note 3
R55	22KΩ	½	27E223-2	BTS-22K	
R56	270KΩ	½	27E273-3	BTS-27K	
R57	18KΩ	½	27E183-2	BTS-18K	
R58	47KΩ	½	27E473-2	BTS-47K	Note 2
R59	270Ω	½	27E271-2	BTS-270	
R60	33KΩ	½	27E333-3	BTA-33K	
R61	270Ω	½	27E271-2	BTS-270	
R62	39KΩ	½	27E393-3	BTS-39K	
R63	3300Ω	5% ½	27E1009-39	BTS-3300 5%	
R64	2700Ω	5% ½	27E1009-28	BTS-2700 5%	
R65	6800Ω	5% ½	27E1009-13	BTS-6800 5%	
R66	6800Ω	5% ½	27E1009-13	BTS-6800 5%	
R67	10Meg	20% ½	27E106-2	BTS-10Meg	
R68	2.2Meg	½	27E225-2	BTS-2.2Meg	
R69	470KΩ	½	27E474-2	BTS-470K	
R70	100KΩ	20% ½	27E104-2	BTS-100K	
R71	8.8Ω	½	27E1015-9	BW-J-8.8	
R72	150Ω	½	27E151-2	BTS-150	
R73	470KΩ	20% ½	27E474-2	BTS-470K	
R74	470Ω	½	27E471-2	BTA-470	
R75	2200Ω	½	27E223-2	BTS-2200	
R76	270KΩ	20% ½	27E274-2	BTS-270K	
R77	470KΩ	20% ½	27E474-2	BTS-470K	
R78	3.3Meg	20% ½	27E335-2	BTS-3.3Meg	
R79	68KΩ	½	27E683-2	BTS-68K	
R80	2.2Meg	20% ½	27E225-2	BTS-2.2Meg	
R81	3300Ω	5% ½	27E1009-39	BTS-3300 5%	
R82	3900Ω	½	27E392-2	BTS-3900	
R83	3900Ω	5% ½	27E1009-43	BTS-3900 5%	
R84	47KΩ	½	BTS-47K		
R85	15KΩ	1	27E153-2	BTA-15K	

ITEM No.	RATING: OHMS	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	NOTES
R86A	22KΩ	½		BTS-22K	
	5820Ω	½	#23E2032-4	BTS-5200	
	6820Ω	½		BTS-6200	
R87	15KΩ	1	27E153-3	BTA-15K	
R88	1.2Meg	½	27E1009-5	BTS-1.2Meg	
R89	470KΩ	20% ½	27E474-2	BTS-470K	
R90	6800Ω	½	27E682-2	BTS-6800	
R91	4.7Meg	20% ½	27E475-2	BTS-4.7Meg	
R92	330KΩ	20% ½	27E334-3	BTS-330K	
R93	2.2Meg	20% ½	27E225-2	BTS-2.2Meg	
R94	470Ω	1	27E471-3	BTS-470	
R95	5600Ω	½	27E562-3	BTS-5600	Note 4
R96	5600Ω	½	27E562-2	BTS-5600	Note 2
R97	100KΩ	5% ½	27E1009-27	BTS-100K 5%	
R98	100KΩ	5% ½	27E1009-27	BTS-100K 5%	
R99	100KΩ	½	27E104-2	BTS-100K	
R100	470KΩ	20% ½	27E474-2	BTS-470K	
R101	470KΩ	20% ½	27E474-2	BTS-470K	
R102	27KΩ	½	27E273-3	BTS-27K	
R103	6800Ω	½	27E682-2	BTS-6800	
R104	820Ω	5% ½	27E1009-41	BTS-820 5%	
R105	82KΩ	½	27E823-3	BTS-82K	
R106	5800Ω	5% ½	27E1009-8	BTS-5600 5%	
R107	8200Ω	5% ½	27E1009-15	BTS-8200 5%	
R108	330KΩ	5% ½	27E1009-6	BTS-330K 5%	
R109	390KΩ	5% ½	27E1009-40	BTS-390K 5%	
R110	18KΩ	½	27E183-2	BTS-18K	
R111	18KΩ	½	27E183-3	BTS-18K	
R112	100Ω	½	27E101-2		
R113	100Ω	½	27E101-2		
R114	560KΩ	½	27E1009-11	BTS-560K	
R115	7500Ω	5	27E1016-17	1 3/4A-7500	
R116	47KΩ	½	27E473-2	BTS-47K	
R117	2.2Ω	½	27E1015-2		
R118	1.2Meg	½	27E1009-5		
R119	2500Ω	7	27E1016-19	1 3/4A-2500	
R120	470Ω	½	27E471-2	BTS-470	
R121	330KΩ	20% ½	27E334-2	BTS-330K	

All resistors ± 10% unless otherwise noted.
Note 1. Some models use a 47KΩ resistor in this application.
Note 2. Not used in all models.
Note 3. Some models use a 560KΩ resistor in this application.
Note 4. Some models use a 2200Ω resistor in this application.
* Items R86A, R86B, R86C, C66A, C66B, C66C are combined in one unit.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	8"	PM	2.5Ω	1E49 1E49-2 ① 1E34 1E34-2 1E34-3 ② 1E34-4 1E43 1E43-2 ③ 1E43-3 1E51 ④	ST-108 Mod. P6-X	6A1	① Alternate 8" PM Speaker ② 8" PM Speaker ③ 10" PM Speaker ④ 12" PM Speaker

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
T1	117VAC	525VCT	5VAC	6.3VAC	22E59				
	① 1.88A	.290ADC	② 6A	① 1.2A					
				SEC. 4					
				6.3VAC					
				③ 9A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	AIR LINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	170Ω	960Ω	22E55-2	A-8125	A-3000	TB0-1 ②	A-97X	Vert osc. trans.
T3	425ΩTap ④ 25Ω	①1.6Ω, 9-T1 SEC. 2 0Ω	22E67	A-8130 ④	HVC-7 ③⑤		D-14	Horiz. output trans.
T4	750ΩTap ⑥ 90	[illegible]		A-8123 ⑥	A-3037 ①	TS0-4 ⑥	A-102X	Vert output trans.
T5A	13Ω		2E-115	DY-8	MDF-70	TY-2	Y-12	Horiz. deflection coils.
B	5Ω		30E164-5 ③ 30E164-7 ⑤ 30E176 ⑤					Vert deflection coils

① Drill one new mtg. hole.
② Drill new mtg. holes.
③ Alternate deflection yoke.
④ Replace width coil with WC-5.
⑤ Replace width coil with MWC-1.
⑥ Connect AFC secondary for AFC voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T6	6KΩ	2.6Ω	450Ω	.6Ω	22E35-3	A-3878	A-3880	RO-13	S-7X	① Drill one new mounting hole.

PARTS LIST CONTINUED ON PAGE 15

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PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	AIR LINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.230A	95Ω	2.8 Hy.	22E64	C-2325	C-2991 ①	TR-3300 ①	C-17X

① Drill one new mtg. hole.

COILS (RF-IF)

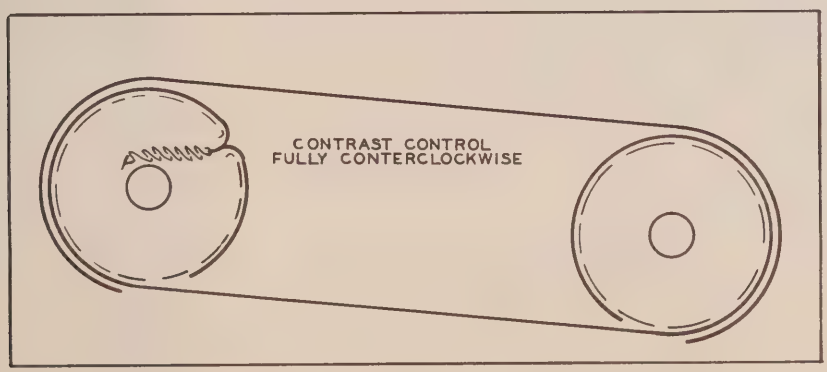
ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	AIR LINE PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	.2Ω	.1Ω	ST-240			
L3	Ant. Coils	0Ω					
L4	Ant. Coil	0Ω		ST-239			
L5	Fil. Choke	0Ω		ST-234			
L6	RF Coil	0Ω		ST-235			Channel 13
L7	RF Coils	0Ω					
L8	Mixer Grid	0Ω		ST-236			Channel 13
L9	Mixer Grid Coils	0Ω					
L10	Osc. Coil	0Ω		ST-237			Channel 13
L11	Osc. Coils	0Ω					
L12	RF Choke	1.2Ω		ST-233			
L13	Conv. Plate	.3Ω		ST-238			
L14	Fil. Choke	0Ω		2E78			
L15	1st. Video IF	.2Ω		20E720			
L16	2nd. Video IF	.1Ω		20E360	TV-103		
L17	3rd. Video IF	.1Ω		20E360	TV-102		
L18	4th. Video IF	.1Ω		20E360	TV-103		
L19	Grid Choke	3.4Ω		20E363-8			Wound on 10Meg resistor
L20	Fil. Choke	1.2Ω		2E92		CLA	1.5 Microhenries
L21	Plate Choke	3.4Ω		20E363-8			Wound on 10Meg resistor
L22	5th. Video IF	.1Ω		20E725	TV-102		
L23	Peaking Coil	7.5Ω		20E363-16			120 Microhenries wound on 10Meg resistor
L24	Peaking Coil	17Ω		20E363-10	TV-188		500 Microhenries wound on 10Meg resistor
L25	Cath. Choke	1.2Ω		2E92		CLA	1.5 Microhenires
L26	Peaking Coil	11Ω		20E363-14	TV-185		250 Microhenries wound on 10 Meg resistor
L27	4.5MC Trap	.3Ω		20E721	TV-151		
L28	Peaking Coil	17Ω		20E363-10	TV-188		500 Microhenries wound on 10Meg resistor
L29	Sound IF	2.6Ω		20E361			Tap @ .8Ω
L30	Ratio Det.	3.5Ω	.3Ω CT	20E684	*TV-110		Tertiary Winding .4Ω
L31	Horiz. Osc.	57Ω		20E409	TV-163		
L32	Width Coil	7Ω		20E685			
L33	Horiz. Lin.	17Ω		20E688	MWC-1		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AIR LINE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		3A 125V.	40E8-10		313003 (3AG-S/B)	342001	MDX 3 2/10	HKP
M2		.2A 250V.	40E8-8		313.200 (3AG-S/B)	357001	MDL 2/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	AIR LINE PART No.	NOTES
M3	RF Tuner	20E711	Complete with tubes
M4	Focus Magnet	62E2	
M5	Ion Trap	15E174-4	
M6	Magnet Assy.	20E726	Anti-Pin Cushion correction
B2	Trimmer	24E16	Horiz. Drive (300-460MMF).
	Rear Cover	20E694-8	Includes Line Cord
	Safety Glass	9E45	
	Mask	36E83	
	Gasket	33E85	Rubber 58"
	Knob	37E71	Brighteness
	Knob	37E71-2	Contrast
	Knob	37E72-2	Off/On Volume
	Knob	37E72-5	Channel Selector
	Control Door	20E693-3LT	



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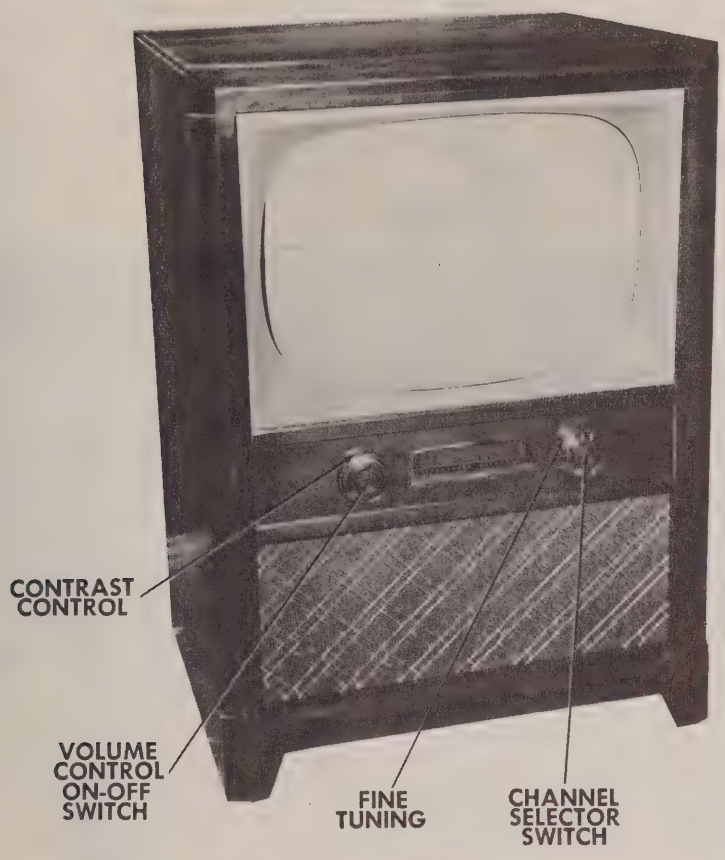

CROSLEY EU-21COLe

TRADE NAME	Crosley Models EU-17COL, EU-17COLB, EU-17TOLa, EU-17TOLB (Ch. 385), EU-21COLBd, EU-21COLd (Ch.386), EU-21COLe, EU-21COLBe (Ch.387), EU-21TOL, EU-21TOLB (Ch.386)
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC 60 Cycle — RATING 1.2 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13, Video IF 26.4MC, Sound IF 21.9MC (Intercarrier)

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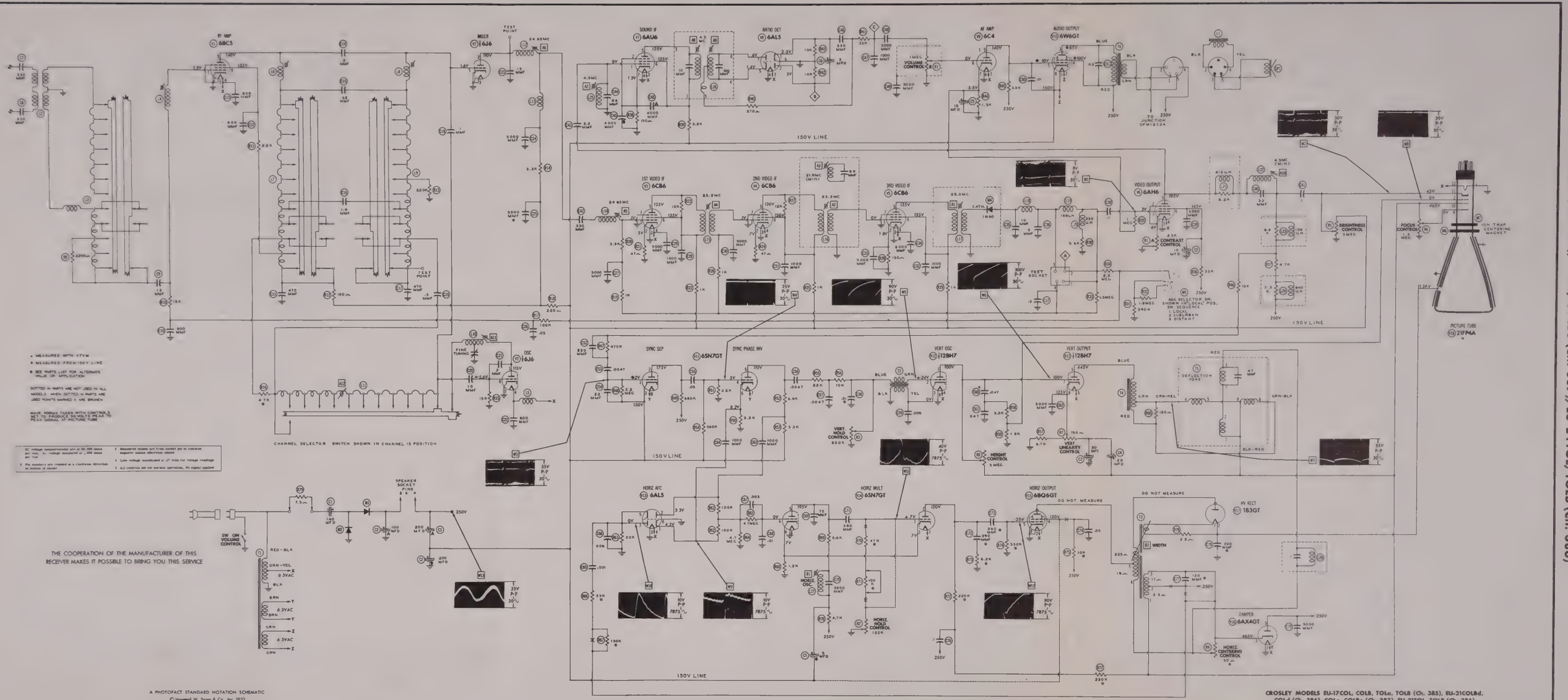
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RF AMP V1 6BC5
MIXER V7 6J6
OSC V8 6J6
SOUND IF V7 6AU6
RATIO DET V8 6AL5
AF AMP V9 6C4
AUDIO OUTPUT V10 6W6GT
1ST VIDEO IF V1 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V6 6AH6
SYNC SEP V11 6SN7GT
SYNC PHASE INV V11 6SN7GT
VERT OSC V12 12BH7
VERT OUTPUT V13 12BH7
HORIZ AFC V13 6AL5
HORIZ MULT V14 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
HV RECT V17 1B3GT
DAMPER V16 6AX4GT
PICTURE TUBE V18 21FP4A
150V LINE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
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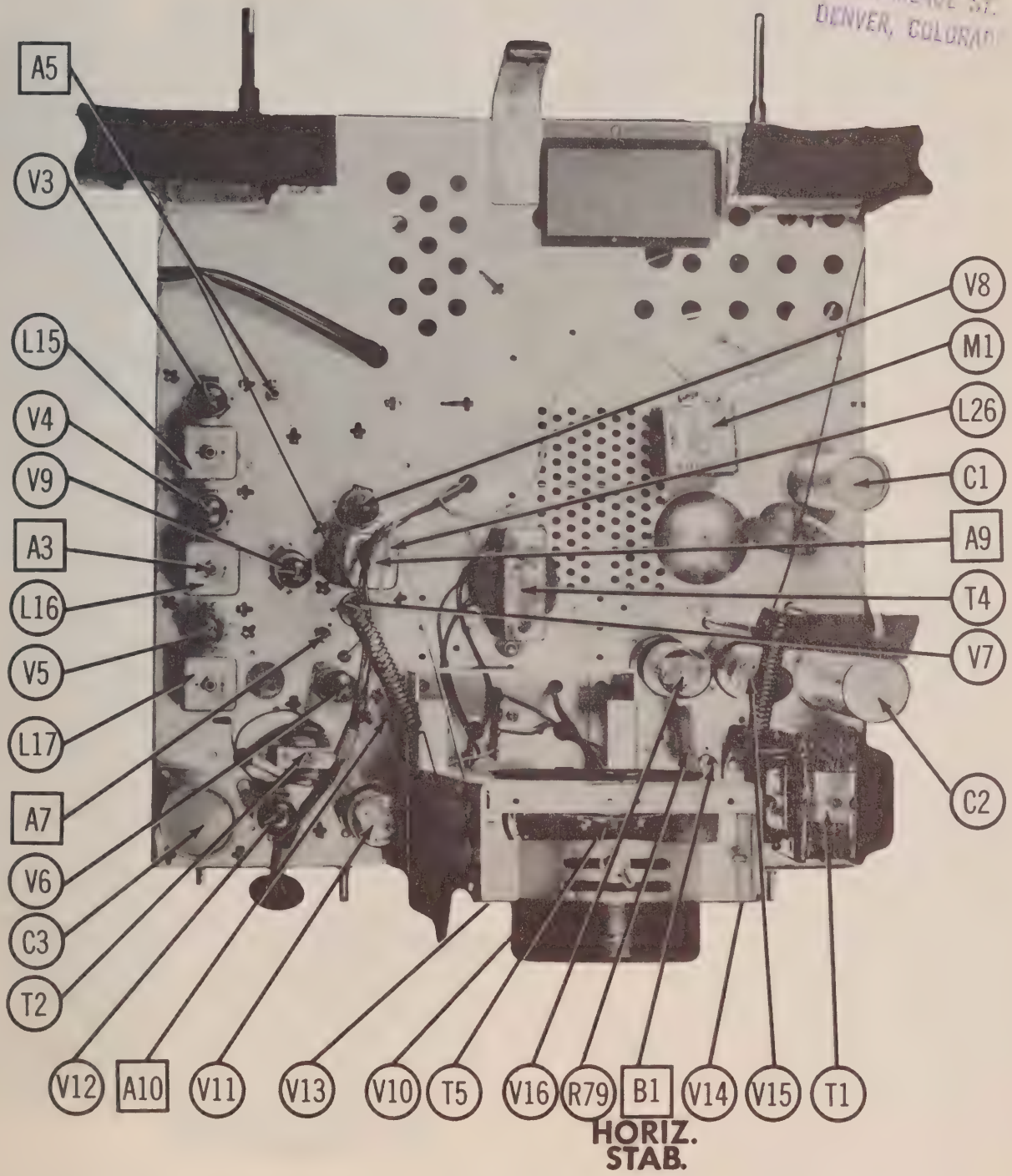
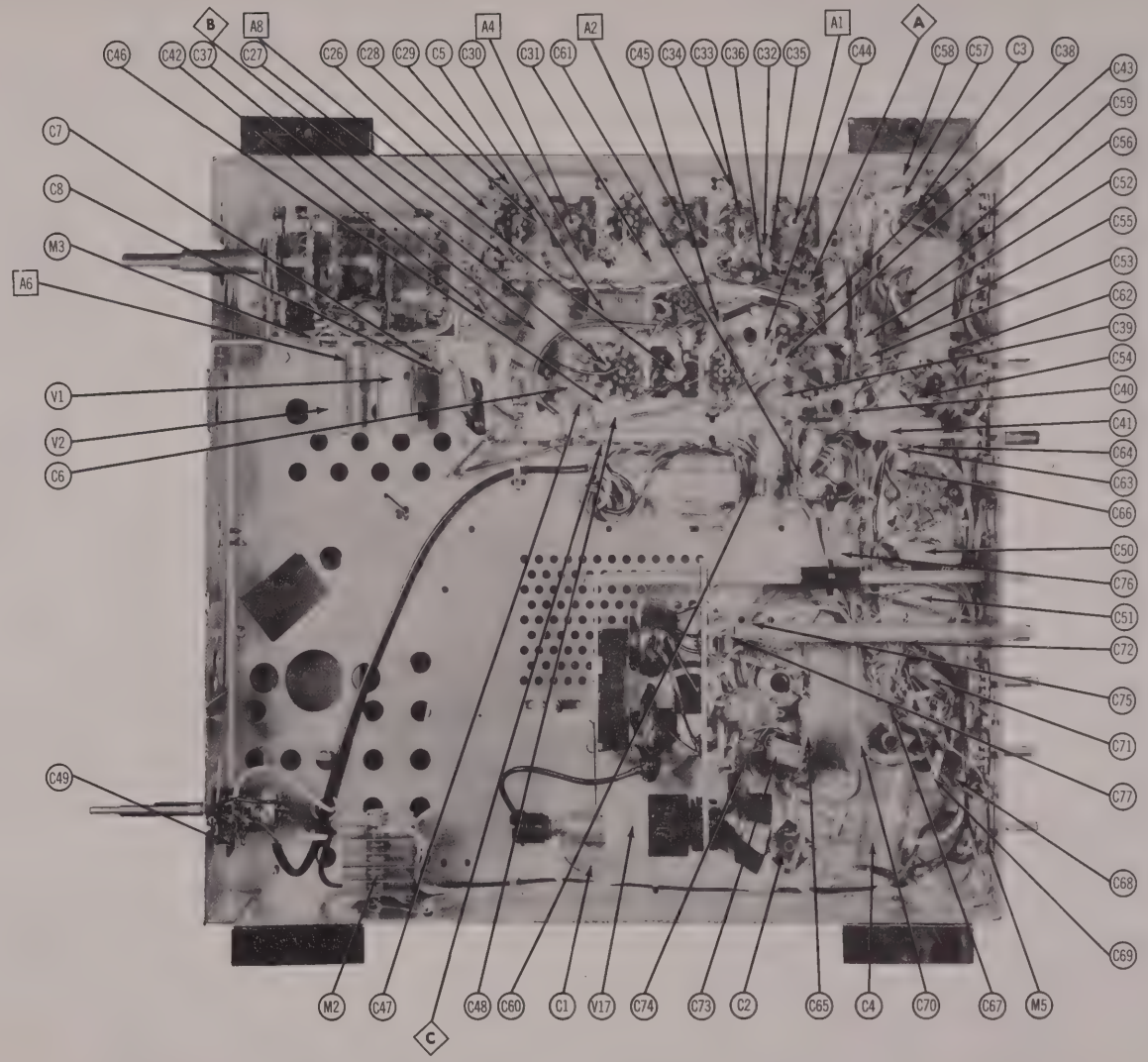
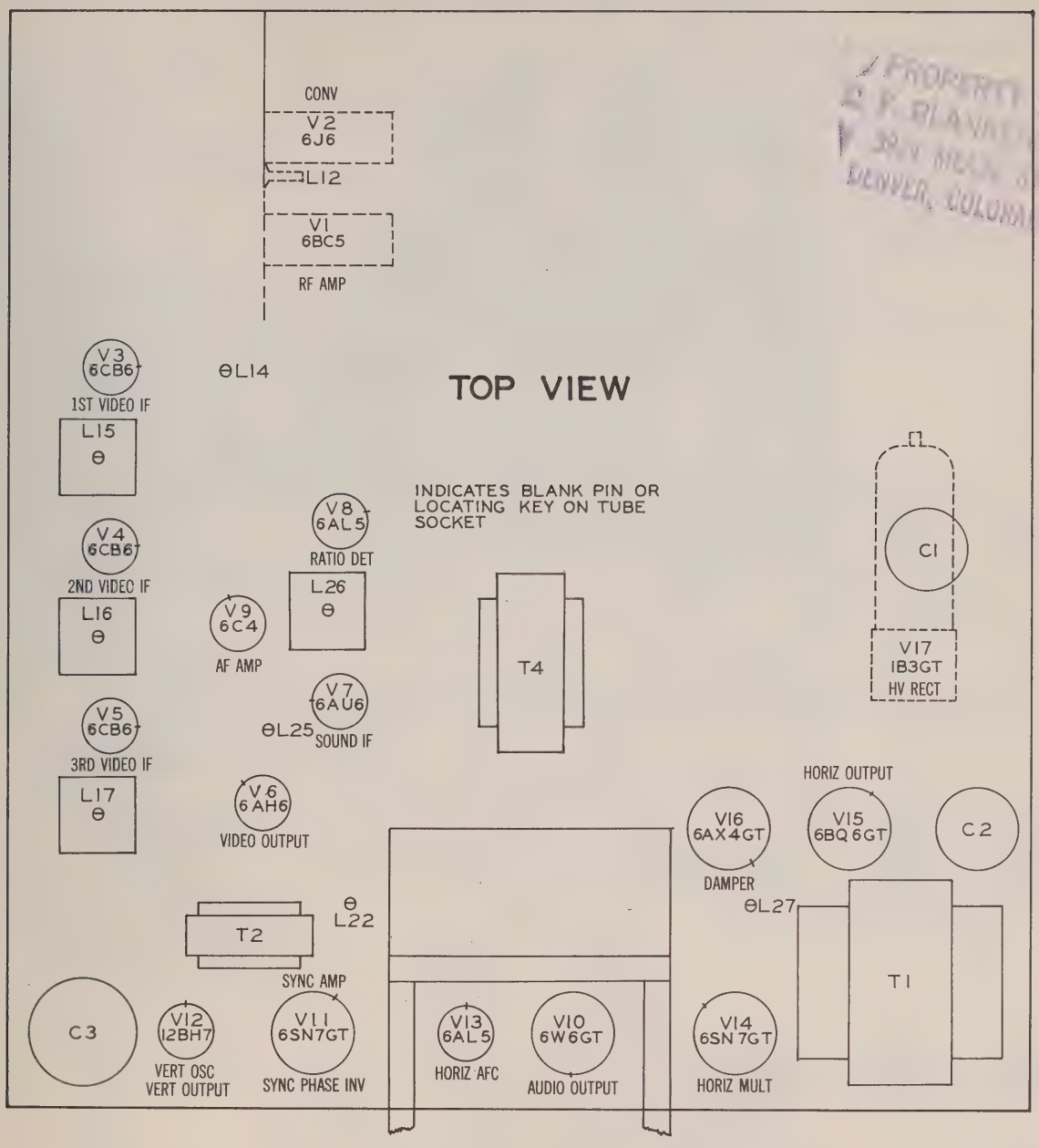


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-Selenium Rectifiers (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6, V10
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V6, V18
Has pic, no sound-V7, V8, V9, V10

SYNC FAILURE
No vert. sync-V11, V12
No horiz. sync-V11, V13, V14
No vert. or horiz. sync-V11

SWEEP FAILURE
No raster, has sound- V14, V15, V16, V17, V18
No vertical deflection-V12
Poor vert. linearity or foldover-V12
Poor horiz. linearity or foldover-V14, V15, V16
Narrow picture-V14, V15, V16, V17, VM1, M2
Vert. off freq. -V11, V12
Horiz. off freq. -V11, V13, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt bias supply to the ungrounded side of C37 (Pin 4 of video test socket.).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.0MC (Unmod:)	Any	DC probe to point ◇A◇. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.3MC	"	"	A2	"
3.	"	"	21.9MC	"	"	A3	Adjust for MINIMUM deflection. Repeat steps 2 and 3.
4.	"	"	25.2MC	"	"	A4	Adjust for maximum deflection.
5.	"	"	24.65MC	"	"	A5	Connect a 500Ω resistor in series with 500MMF capacitor across L12. Adjust for maximum deflection. Attenuate generator to maintain approximately 2 volts at VTVM.
6.	"	"	"	"	"	A6	Move 500Ω in series with 500MMF across L14. Adjust A6 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.9MC 23.3MC 25.2MC 26.4MC	Any	Vert. Amp. to point ◇A◇. Low side to chassis.		Check for response curve similar to Fig.1. If necessary retouch A1, A2, A4, A4 and A6 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to point ◇A◇. Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point ◇B◇. Common to chassis.	A7, A8	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point ◇C◇. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to point ◇A◇. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point ◇B◇. Low side to chassis.	A7, A8	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
9.	"	"	"	"	"	Vert. Amp. to point ◇C◇. Low side to chassis.	A9	Reconnect capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001MFD	High side to point ◇A◇. Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru detector (Fig.4) to pin 11 of picture tube. Common to chassis.	A10	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Allow the receiver to warm up for approximately five minutes.
Set the station selector switch to the highest channel available in that area. Adjust contrast and volume for normal reception.
Set the fine tuning control at the center of its range.
With a non-metallic alignment tool adjust the slotted head brass screw (A11) located at the upper left of the tuning shaft for clearest and sharpest detail in the picture.
Check any other channels, 13 to 7 receivable in that area and make slight compromise adjustment of A11 if necessary for best reception of all high band channels.
For low band channels set station selector switch to the channel nearest channel 6 and adjust the slotted brass screw (A12) to the right of the tuning shaft for clearest and sharpest detail in the picture. Check other channels 6 to 2 receivable in that area.

RF ALIGNMENT

The RF portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

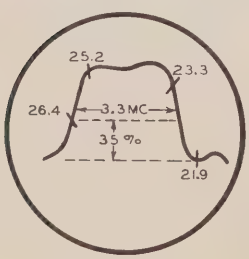


FIG. 1

FIG. 2

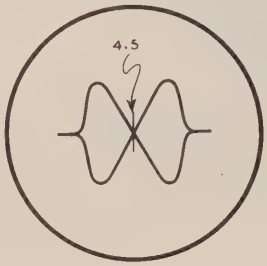


FIG. 3

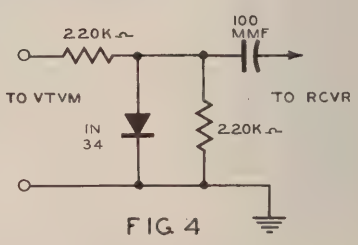


FIG. 4

PROPERT
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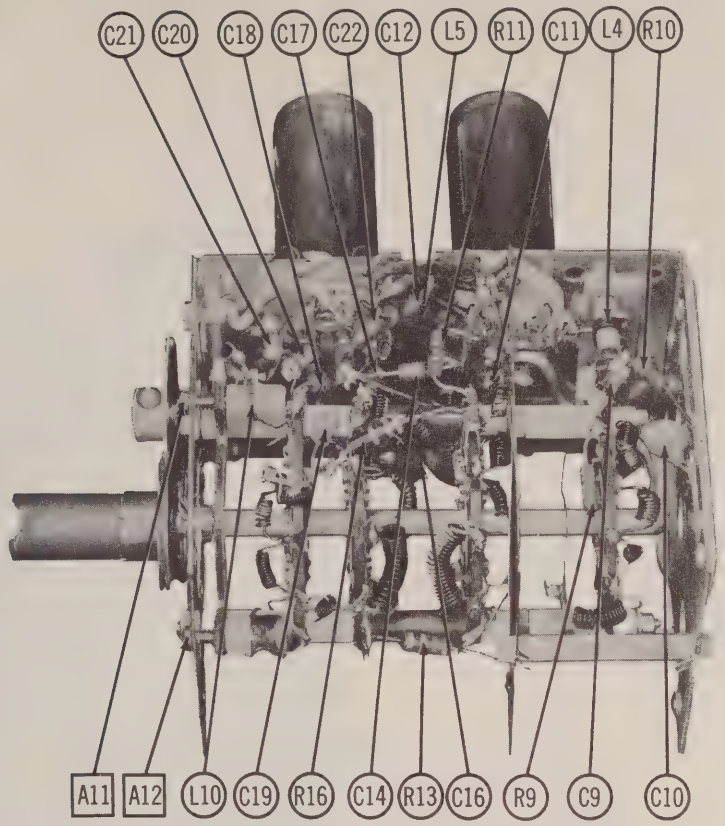
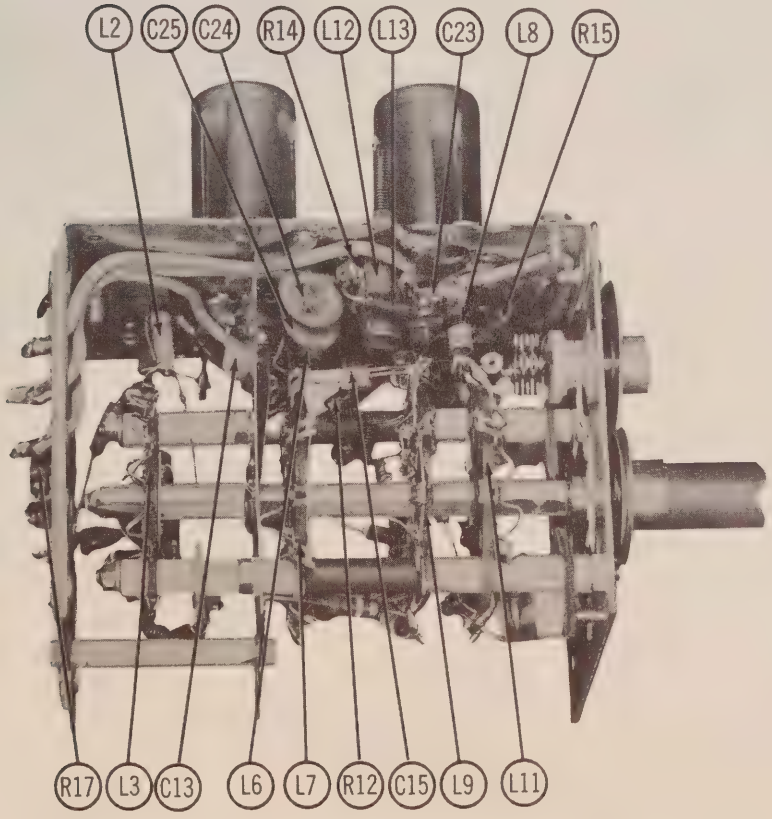


RF TUNER-RIGHT SIDE

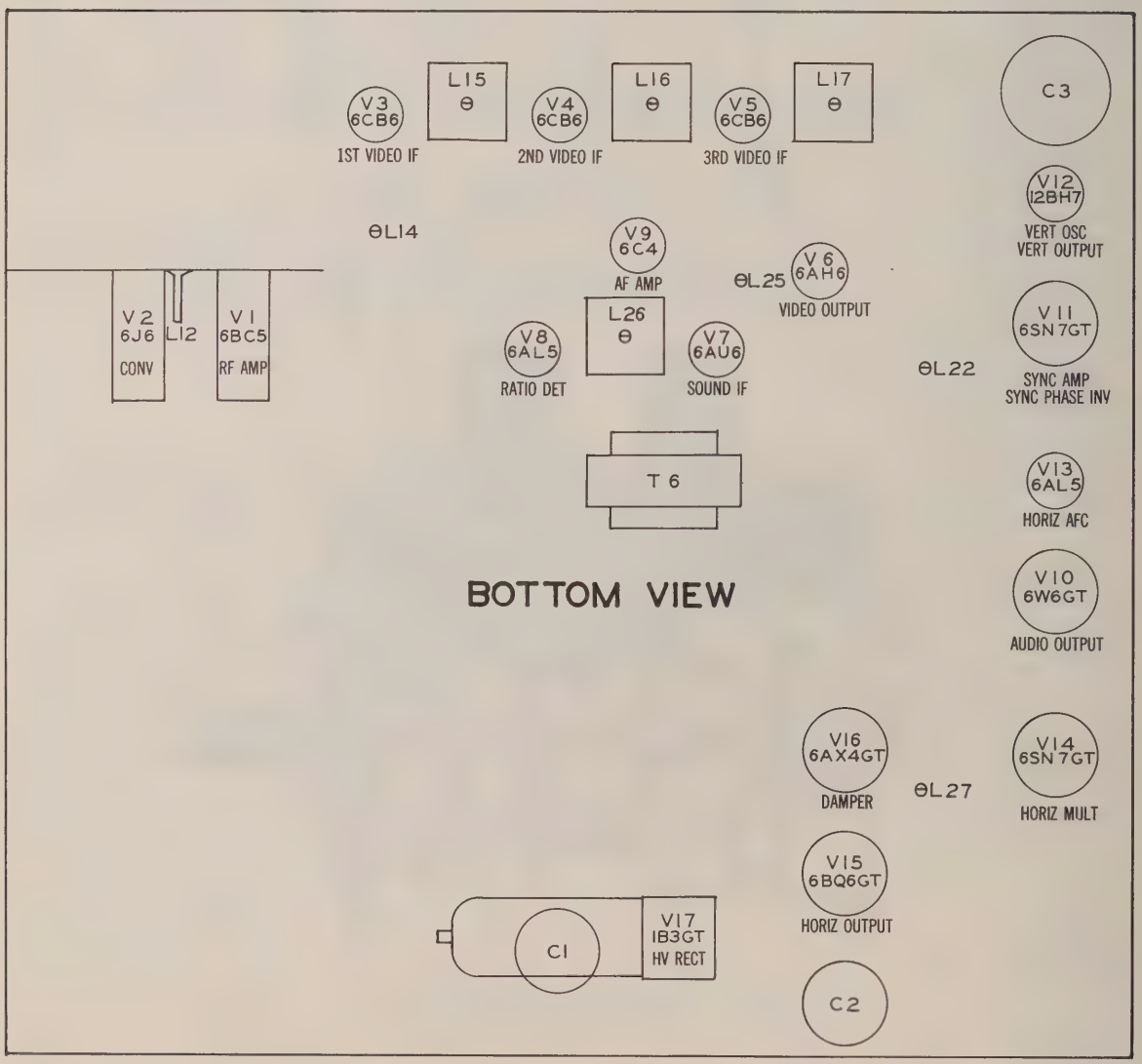


RF TUNER-LEFT SIDE

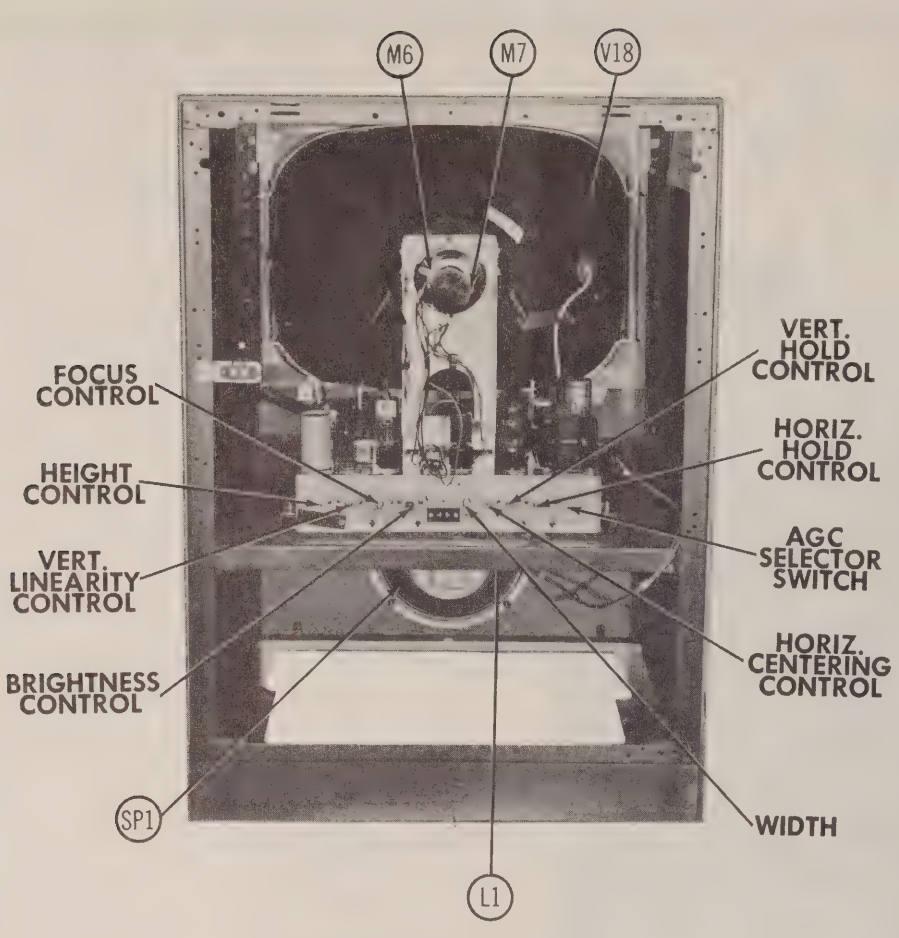
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2.3Meg	0Ω	0Ω	.1Ω	#320Ω	#2.8KΩ	0Ω		
V 2	6J6	#5KΩ	#3.5KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	1.5Meg	47Ω	0Ω	.1Ω	#1KΩ	#1KΩ	0Ω		
V 4	6CB6	1.5Meg	47Ω	0Ω	.1Ω	#1KΩ	#1KΩ	0Ω		
V 5	6CB6	.4Ω	150Ω	0Ω	.1Ω	#1KΩ	#1KΩ	0Ω		
V 6	6AH6	1Meg	200Ω	0Ω	.1Ω	† 4.7KΩ	† 33KΩ	200Ω		
V 7	6AU6	1Ω	150Ω	.1Ω	0Ω	#2.2KΩ	#2.2KΩ	150Ω		
V 8	6AL5	10KΩ	10KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 9	6C4	† 33KΩ	INF	.1Ω	0Ω	† 33KΩ	35Ω	1.5KΩ		
V 10	6W6GT	INF	#.3Ω	† 300Ω	† 83Ω	† 33KΩ	4.7Meg	#0Ω	300KΩ	
V 11	6SN7GT	#2.2 Meg	† 680KΩ	#0Ω	22KΩ	#10KΩ	2.2KΩ	INF	INF	
V 12	12BH7	■2.7Meg	500KΩ	50Ω	.1Ω	.1Ω	■760Ω	■2.7Meg	9KΩ	0Ω
V 13	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	22KΩ	0Ω	22KΩ		
V 14	6SN7GT	100KΩ	■440KΩ	1.2KΩ	9.4Meg	†11KΩ	1.2KΩ	.1Ω	0Ω	
V 15	6BQ6GT	INF	0Ω	■440KΩ	†10KΩ	330KΩ	22KΩ	.1Ω	0Ω	TOP CAP ■30Ω
V 16	6AX4GT	INF	■20Ω	1.2Meg	INF	† 83Ω	■33KΩ	0Ω	.1Ω	
V 17	1B3GT	PINS 1 TO 8 HAVE INF. RESISTANCE								TOP CAP ■255Ω
V 18	21FP4A	0Ω	1.8KΩ	PIN 6 55Ω	PIN 10 ■15Ω	PIN 11 490KΩ	PIN 12 .1Ω			

ALL MEASUREMENTS TAKEN WITH AGC SELECTOR IN "LOCAL" POSITION.
† MEASURED FROM OUTPUT OF M1.
# MEASURED FROM 150 VOLT LINE.
■ MEASURED FROM PIN 3 OF V16.



TUBE PLACEMENT CHART



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern. Adjust contrast for normal picture.

If horizontal hold is too critical adjust as follows:

1. Connect DC probe of VTVM to junction of R62 and R63 (Near V14 tube socket). Connect common lead to chassis.
2. Short pin 7 of V13 to chassis and adjust VTVM to zero.
3. Remove short from pin 7 of V13. Do not readjust VTVM.
4. Connect a .1MFD 600 V. capacitor from junction of horizontal oscillator coil L27 and R69 to chassis.
5. Adjust horizontal hold control for zero on VTVM.
6. Remove the .1MFD capacitor from L27 and R69.
7. Adjust the horizontal oscillator slug (B1) for zero on VTVM.

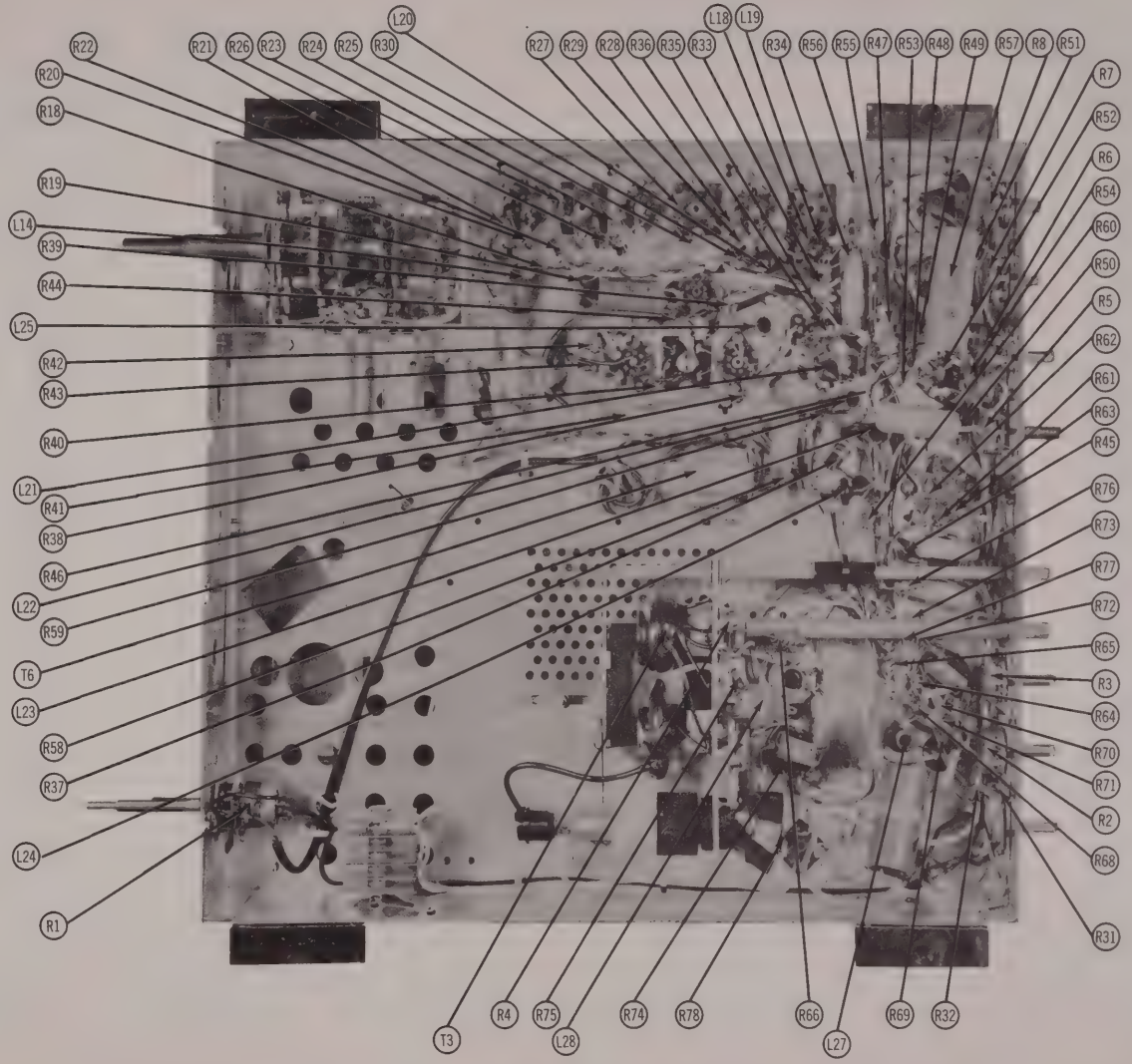
Remove VTVM and check pull in range of horizontal hold which should be effective for approximately 50 degree rotation.

Adjust the width control slug(B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 3 push on type control knobs, 5 metal screws. Remove rear cover.
3. Disconnect built-in antenna. Remove 1 metal screw. Remove antenna bracket.
4. Disconnect speaker. Remove 4 speaker nuts. Remove speaker.
5. Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL & CLEANING IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINES ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AH6	6AH6	7BK	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Detector	6AL5	6AL5	6BT	
V9	AF Amplifier	6C4	6C4	6BG	
V10	Audio Output	6W6GT	6W6GT	7S	
V11	Sync Separator-Sync Phase Inv.	6SN7GT	6SN7GT	8BD	
V12	Vert. Oscillator Vert. Output	12BH7	12BH7	9A	
V13	Horiz. AFC	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3G f	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V18A	21FP4A	21FP4A	12C	① Circuit changes necessary
B	21MP4 ①	21FP4 ①	12C	
C	17HP4	17HP4	12C	
D	17HP4A ①		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	140	150	154096	E3A249		XA004		FP117	5HK-D1	R1267
C2A	▲100	300	154099	E4D491		D109		FP419.4	VT41-4561	
B	▲200	150								
C	30	150								
D	▲10	300								
C3A	▲200	150	154098	E4B357		XB006		FP216.1	TVL-2444	
B	▲5	150				BR415				
C4	20	450	154097	PR5450/20		BR2045A		TC75	TVA-1709	
C5	10	50	154104	PR350/10		BR105		TC32	TVA-1304	
C6	5	50	154103	PR350/5		BR550		TC30	TVA-1303	
C7	330		137727-129	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C8	330		137727-129	SI330	D6-331		GP2K-471	UC-5347	5GA-T47	
C9	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C10	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C11	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C12	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C13	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C14	.2									
C15	.62				TC2-.68		NP0K-R68 N P0K-1R6			
C16	1.8									
C17	470			SI470	D6-470	TM5T5	GP2K-471	UC-5347	5GA-T47	
C18	1				TC2-1		NP0K-010		5TCC-V1	
C19	.3									
C20	10			SI10NT50	TCN-10		N750K-100	NT-541	5TCU-Q1	
C21	0									
C22	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C23	15			SI15	D6-150		GP1K-150	UC-5415	5GA-T15	
C24	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 1
C26	.05	200	39001-17	P288-05	DF-503	PT2S5		PT415	2TM-S5	
C27	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	1000		144675-14	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C29	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	1000		144675-14	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C32	1000		144675-14	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C33	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C35	10		137727-125	SI10NT050			N060-331-100			
C36	5		137727-103	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V 47	
C37	.5	25	154157					PT405	2TM-P5	
C38	.1	200	39001-19	P288-1	DF-104	PT2P1		PT401	2TM-P1	
C39	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C40	33		137727-126							
C41	.1	400	39001-19	P488-1	D6-104	PTK4P1		PT401	4TM-P1	
C42	330		137727-129	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C43	2.2		154100-4		TC2-2.2		NP0K-2R2		5TCCB-V22	
C44	68		137727-133							
C45A	4000		144675-6	BPD-2X004	D6-402	TM5DD4	S32-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C46	330		137727-129	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C47	1000		144674-14	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C48	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C49	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C50	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C51	.02	600	39001-80	P888-02	DF-203	PTE8S2		PT812	6TM-S2	
C52	220		137727-131	SI220	D6-221	SW5T22	GP2K-221	UC-5322	5GA-T22	
C53	.0047	400	39477-39	P688-0047	D6-472	PTE8D47	GP2-333-472	PT6247	6TM-D47	
C54	22		137727-26	SI22	D6-220	SW5Q25	GP1K-220	UC-5422	5GA-Q22	
C55	.05	400	39001-17	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C56	.0047	400	39477-39	P688-0047	D6-472	PTE8D47	GP2-333-472	PT6247	6TM-D47	
C57	.0047	400	39477-39	P688-0047	D6-472	PTE6D47	GP2-333-473	PT6247	6TM-D47	
C58	.01	400	39477-41	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	Note 2
C59	.005	600	39001-11	P888-005	D6-502	PTE8D5	GP2-333-502	PT825	6TM-D5	
C60	.047	400	39477-45	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C61	.047	400	39477-45	P488-047	DF-503	PTE4S47		PT6147	6TM-S47	
C62	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C63	1000		137727-132	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C64	1000		137727-132	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C65	.001	1000	39477-53	P1088-001		PTE1E0I		PT1821	MB-D1	
C66	.008	600	39001-78	P888-008	D6-802	PTE8D8	GP2-333-802	PT828	8TM-D8	
C67	.003	600	39001-78	P888-003	D6-302	PTE8D3	GP2-333-303	PT823	6TM-D3	
C68	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C69	75		137727-134							
C70	3900	500	137499-30	1464-004		1DR5D4		MCB463	MS-34	
C71	390	500	137499-31	1469-0004		5R5T4		MCB243	MS-34	
C72	390	500	137499- 31	1469-0004		5R5T4		MCB243	MS-34	Note 3
C73	560	500	137499-34							Note 4
C74	.05	400	39001-17	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C75	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C76	.1	400	39001-19	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C77	120	3000	154088							Note 5
C78	500	20000	15 4394	HY30C		TV3-502	MMC-20T5	413-501	20DK-T5	Note 6

Note 1. Some Models use 470MMF in this application.
Note 2. Some Models use .0047MFD in this application (Part #39477-39)
Note 3. Some Models use 500MMF in this application (Part #137499-34) Early Prod. use 680 MMF.
Note 4. Some Models use 5000MMF in this application (Part #144675-2)
Note 5. Some Models use 150MMF in this application (Part #154102)
Note 6. Used in Chassis 386 only.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2500Ω	½	C-154085-C	QJ-370*	RTV-370	SBB-727-S	UP25SL†	Contrast-Panel
B	1 Meg	½					UR16A †	Volume-Rear
C	Switch						U8-26 †	Attach to R1B
R2A	120KΩ	½	B-154093-A	QU-125	AG-49-S	AB-35	U-415	Horiz. Hold -Note 1
B	Shaft		Not Req.	Not Req.	KSB-3	AK-1	Not Req.	Attach to R2A
R3A	250KΩ	½	B-154087-A	QU-133	AG -58-S	AB-59	U-50	Vert. Hold-Note 2
B	Shaft		Not Req.	Not Req.	KSB-3	AK-1	Not Req.	Attach to R3A
R4A	50Ω	1	154083					Horiz. Centering-Wire Wound-Note 5
R5A	5 Meg	½	B-154-95-A	QU-141	AG-85-S	AB-87	SU-67	Brightness-Note 3
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1.5Meg	½	B-154094-A	QU-138	AG-83-S	AB-75	U-155	Focus
B	Shaft		Not Req.	Not Req.	KSB-3	AK-1	Not Req.	Attach to R6A
R7A	750Ω	½	B-154088-B	QU-105	AG-8-S	AB-5	U-4	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	5 Meg	½	B-154086	QU-141	AG-85-S	AB-87	SU-67	Height-Note 4
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R8A

† UNIVERSAL REPLACEMENT(MALLORY EXACT DUPLICATE-PART No. UB330S).
* CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS B17-111 & P6-202(Panel)
B13-137 & R1-223 (Rear) & SWITCH 76-1.

Note 1. Connect a 47KΩ resistor in series with clockwise terminal & R1.
Note 2. Connect a 330KΩ resistor in series with clockwise terminal & Ground.
Note 3. Connect a 100KΩ resistor in series with clockwise terminal & ground.
Note 4. Connect a 1 Meg resistor in series with clockwise terminal & positive side of C4.
Note 5. Some models use alternate control (Part No. 154169).

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	NOTES
R9	2200Ω	½		BTS-2200	
R10	150Ω	½		BTS-150	
R11	2200Ω	½		BTS-2200	
R12	100Ω	½		BTS-100	
R13	220KΩ	½			
R14	3300Ω	½		BTS-3300	
R15	15KΩ	½		BTS-15K	
R16	4700Ω	½		BTS-4700	Note 1
R17	100KΩ	½	39374-49	BTS-100K	
R18	220Ω	½	39374-17	BTS-220	
R19	1000Ω	½	39374-25	BTS-1000	
R20	3900Ω 5%	½	39375-63	BTS-3900 5%	
R21	47Ω	½	39374-9		
R22	1000Ω	½	39374-25	BTS-1000	
R23	10KΩ 5%	½	39375-73		
R24	47Ω	½	39374-9		
R25	1000Ω	½	39374-25	BTS-1000	
R26	1000Ω	½	39374-25	BTS-1000	
R27	12KΩ 5%	½	39375-75		
R28	150Ω	½	39374-15	BTS-150	
R29	1000Ω	½	39374-25	BTS-1000	
R30	5600Ω 5%	½	39375-67	BTS-5600 5%	
R31	390KΩ	½	39374-58	BTS-390K	
R32	1.5Meg	½	39374-67	BTS-1.5Meg	
R33	1.5Meg	½	39374-65	BTS-1.5Meg	
R34	2.2Meg	½	39374-69	BTS-2.2Meg	
R35	1Meg	½	39374-61	BTS-1Meg	
R36	33KΩ	1	39374-131	BTA-33K	
R37	4700Ω 5%	2	39375-381	BTS-4700 5%	
R38	150Ω	½	39374-15	BTS-150	
R39	2200Ω	½	39374-29	BTS-2200	
R40	270Ω	½	39374-18	BTS-270	
R41	33KΩ	½	39374-43	BTS-33K	
R42	10KΩ 5%	½	39375-73	BTS-10K 5%	
R43	10KΩ 5%	½	39375-73	BTS-10K 5%	
R44	1500Ω	½	39374-27	BTS-1500	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	NOTES
R45	33KΩ	½	39374-43	BTS-33K	
R46	10KΩ	½	39374-37	BTS-10K	
R47	470KΩ	½	39374-57	BTS-470K	
R48	2.2Meg	½	39374-69	BTS-2.2Meg	
R49	680KΩ	½	39374-59	BTS-680K	
R50	2200Ω	½	39374-29	BTS-2200	
R51	22KΩ	½	39374-41	BTS-22K	
R52	6800Ω	½	39374-35	BTS-6800	
R53	3300Ω	½	39374-31	BTS-3300	
R54	560KΩ	1	39374-146	BTA-560K	
R55	22KΩ	½	39374-41	BTS-22K	
R56	10KΩ	½	39374-37	BTS-10K	
R57	8700Ω	5	154086	1-3/4A-9000	
R58	3300Ω	½	39374-31	BTS-3300	
R59	1800Ω	½	39374-28	BTS-1800	
R60	120Ω	½	39374-14	BTS-120	
R61	22KΩ	½	39374-41	BTS-22K	
R62	100KΩ	½	39374-49	BTS-100K	
R63	100KΩ	½	39374-49	BTS-100K	
R64	4.7Meg	½	39374-77	BTS-4.7Meg	
R65	4.7Meg	½	39374-77	BTS-4.7Meg	
R66	33KΩ	1	39374-131	BTA-33K	Note 2
R67	150KΩ	½		BTA-150K	Note 2
R68	1200Ω	½	39374-26	BTS-1200	
R69	5600Ω	½	39374-34	BTS-5600	
R70	47KΩ	½		BTS-47K	Note 3
R71	100KΩ	½	39374-49	BTS-100K	Note 3 & 4
R72	220KΩ	½	39374-53	BTS-220K	Note 5
R73	8200Ω	½	39374-36	BTS-8200	Note 6
R74	330KΩ	½	39374-55	BTS-330K	Note 7
R75	10KΩ	2	39374-213	BTS-10K	Note 3
R76	4700Ω	1	39374-121	BTA-4700	
R77	220KΩ	½	39374-53	BTS-220K	Note 5
R78	2.2Ω	½	39303-12		
R79	7.5Ω	5	154089		

Note 1. Some Models use a 10KΩ resistor in this application.
Note 2. Some Models use two 150KΩ resistors in series in this application.
Note 3. Not used in all Models.
Note 4. Some Models use a 47KΩ resistor in this application.
Note 5. Some Models use a 120KΩ resistor in this application.
Note 6. Some Models use a 5600Ω resistor in this application.
Early production uses a 4700Ω resistor.
Note 7. Some Models use a 470KΩ resistor in this application.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	120VAC	6.3VAC	6.3VAC		154290-B				
	▲.57A tap ▲ 6.3VAC	▲ .6A	▲ 1.2A						
	▲ 7.2A								

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	50Ω	215Ω	154105-1	A-8125	A-3000 ①	T80-2 ②	A-97X	Vert. Osc. Trans.
T3	274Ω tap ▲19Ω	19.5Ω tap ▲ 2.5Ω .SEC. 2 0Ω	154990					Horiz. Output Trans.
T4	740Ω tap ▲1Ω		154106	A-8140 ④ ⑤	A-3081 ①	T80-8 ④ ⑤	A-103X ① ④	Vert. Output Trans.
T5A	42Ω		154106-B ③ 154221-8 ④ ⑧	DY-10 ⑦	MDF-30 ⑦	TY-4 ⑦	Y-20 ⑦	Horiz. Deflection Coils
B	2.5Ω							Vert. Deflection Coils

① Drill one new mounting hole.
② Mount on top of chassis.
③ Alternate Vert. Output Trans.
④ Connect as Auto Trans.
⑤ Drill new mount ing holes.
⑥ Term #8 tied to term #8 on indside of yoke.
⑦ Use original deflection coil network
⑧ Includes centering magnet.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	2.3KΩ	3.3Ω	205Ω	.46Ω	154109-B	A-3876	A-2928	RO-304	S-1X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP	REPLACEMENT DATA: CROSLEY PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	10"	PM	3.3Ω	154456-1	10J11	10A31	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL CURRENT	RATINGS: D C RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 M/A	REPLACEMENT DATA: CROSLEY PART No	STANCOR PART No	MERIT PART No	CHICAGO PART No	TRIAD PART No
L1	.180ADC	85Ω	1.4 Hy.	B-154442-A	C-3227	C-3994	TR-4200	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No	MERIT PART No	NOTES
L2	Ant. Trans.	0Ω	0Ω			Low Band Secondary - 0Ω
L3	Ant. Coils	0Ω				
L4	Ant. Coil	0Ω				Channel 13
L5	Fil. Choke	0Ω				
L6	RF Coil	0Ω				Channel 13
L7	RF Coils	0Ω				
L8	Mixer Grid coil	0Ω				Channel 13
L9	Mixer Grid Coils	0Ω				
L10	Osc. Plate Coil	0Ω CT				
L11	Osc. Coils	0Ω				
L12	Conv. Plate	.2Ω				
L13	RF Choke	.1Ω				
L14	1st. Video IF	.2Ω		154287	TV-112	
L15	2nd Video IF	.4Ω	4Ω	154307		
L16	3rd Video IF	.4Ω	.4Ω	154319		Includes Trap
L17	4th Video IF	.6Ω	.6Ω	154331		Includes 1N64 Crystal
L18	RT Choke	3.4Ω		154376		
L19	Series Peaking Coil	9Ω		154171	TV-184	168 Microhenries
L20	Shunt Peaking Coil	13Ω		154184	TV-188	335 Microhenries
L21	Series Peaking Coil	14Ω		154194	TV-188 *	412 Microhenries, wound on 8.2KΩ resistor
L22	4.5MC Trap	3Ω		154158	TV-151	
L23	Shunt Peaking Coil	6.8Ω		154206	TV-181 ■	196 Microhenries, wound on 6.8KΩ resistor
L24	Shunt Peaking Coil	22Ω		154176		840 Microhenries, wound on 3.3KΩ resistor
L25	Sound IF	1Ω		154183	TV-151	
L26	Ratio Det.	4Ω	.6Ω CT	154108	TV-110	Tertiary Winding - .5Ω
L27	Horiz. Osc.	95Ω		154220	TV-163	
L28	Horiz. Lin.	12Ω		154158		Wound on .1MMF capacitor

* Parallel with 8.2KΩ resistor
■ Parallel with 6.8KΩ resistor

SELENIUM RECTIFIER

ITEM No.	RATING: CURRENT	REPLACEMENT DATA: CROSLEY PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No	MALLORY PART No	NOTES
M1	.180A	154124	NK5	6Q4	3090A	6S-300	
M2	.180A	154124	NK5	6Q4	3090A	6S-300	

PARTS LIST CONTINUED ON PAGE 15

CROSLEY MODELS EU-17COL, COLB, TOLa (Ch. 385), EU-21COLBd, COLd (Ch. 386), COLe, COLBe (Ch. 387), EU-21TOL, TOLB (Ch. 386)

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M3	RF Tuner	154116	
M4A	Crystal Diode	154110	1N60
B	Crystal Diode	154111	1N64
M5	Switch	154115	AGC Selector
M6	Centering Magnet		Mounted on back cover of yoke.
M7	Ion Trap	153109-2	
	Cabinet	154269-1	Model EU-17C0L
	Cabinet	154269-2	Model EU-17C0LB
	Cabinet	154222-1	Model EU-17T0La
	Cabinet	154222-2	Model EU-17T0LB
	Cabinet	154332-1	Model EU-21C0Ld, EU-21C0Le
	Cabinet	154332-2	Model EU-21C0LBd, EU-21C0LBe
	Cabinet	154312-1	Model EU-21T0L
	Cabinet	154312-2	Model EU-21T0LB
	Back & Power Cable A	154327	Models EU-17C0L, EU-17C0LB, EU-17T0La, EU-17T0LB
	Back & Power Cable A	154433	Models EU-21C0Ld, EU-21C0LBd
	Back & Power Cable A	154419	Model EU-21T0L, EU-21T0LB
	Back & Power Cable A	154447	Models EU-21C0Le, EU-21C0LBe
	Safety Glass	154101	Models EU-17C0L, EU-17C0LB, EU-17T0La
	Safety Glass	154382-2	Models EU-21C0Ld, EU-21C0LBd, EU-21C0Le, EU-21C0LBe
	Safety Glass	154382-1	Models EU-21T0L, EU-21T0LB
	Mask	154154	Models EU-17C0L, EU-17C0LB, EU-17T0La, EU-17T0LB
	Mask	154333-2	Models EU21C0Ld, EU-21C0LBd
	Mask	154333-1	Models EU-21T0L, EU-21T0LB
	Mask	153351-1	Models EU-21C0Le, EU-21C0LBe
	Knob	154216-1	Contrast Models EU-17C0L, EU-17T0La, EU-21C0La, EU-21T0L
	Knob	154216-2	Contrast Models EU-17C0LB, EU-17T0LB, EU-21C0LBd, EU-21T0LB, EU-21C0LBe
	Knob	154214-1	Tuning(Large) Models EU-17C0L, EU-17T0La, EU-21C0La, EU-21T0L, EU-21C0Le
	Knob	154214-2	Tuning (Large) Models EU-17C0LB, EU-17T0LB, EU-21C0LBd, EU-21T0LB, EU-21C0LBe.
	Knob	154215-1	Tuning (Small) Models EU-17C0L, EU-17T0La, EU-21C0Ld, EU-21T0L, EU-21C0Le.
	Knob	154215-2	Tuning (Small) Models EU-17C0LB, EU-17T0LB, EU-21C0LBd, EU-21T0LB, EU-21C0LBe.
	Knob	154217-1	Off-On Volume, Models EU-17C0L, EU-17T0La, EU-21C0Ld, EU-21T0L, EU-21C0Le.
	Knob	154217-2	Off-On Volume, Models EU-17C0LB, EU-17T0LB, EU-21C0LBa, EU-21T0LB, EU-21C0LBe.
	Knob	154265	AGC Selector
	Knob	154270	Horizontal and Vertical Hold (2 used).

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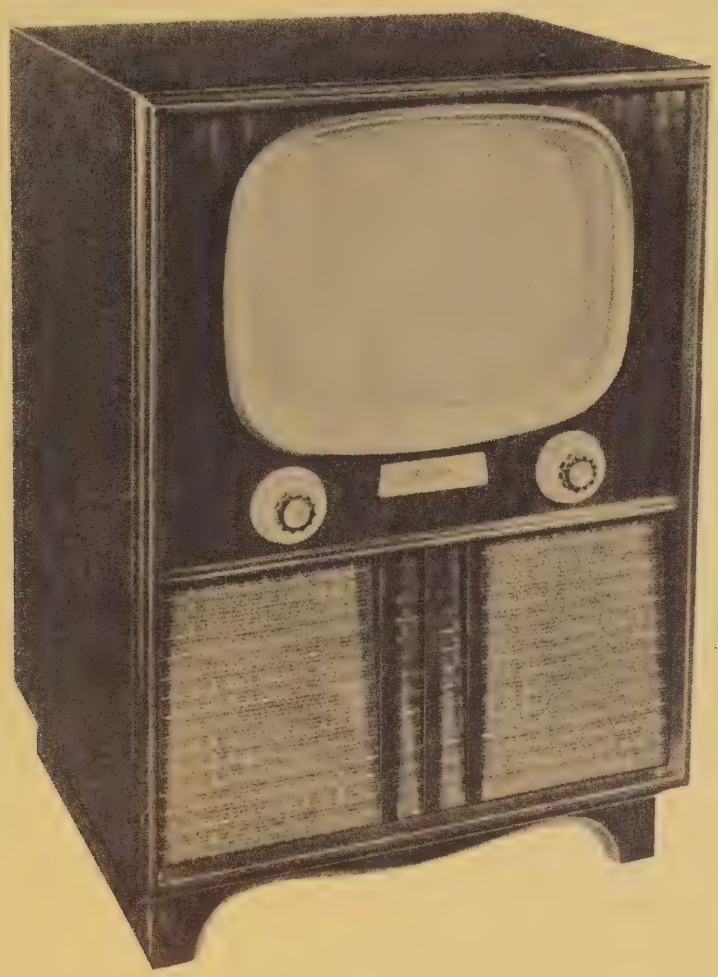

MODEL 13-G-51

FIRESTONE MODELS 13-G-51,
13-G-52, (Code 307-1-9202A, AA, B, BA)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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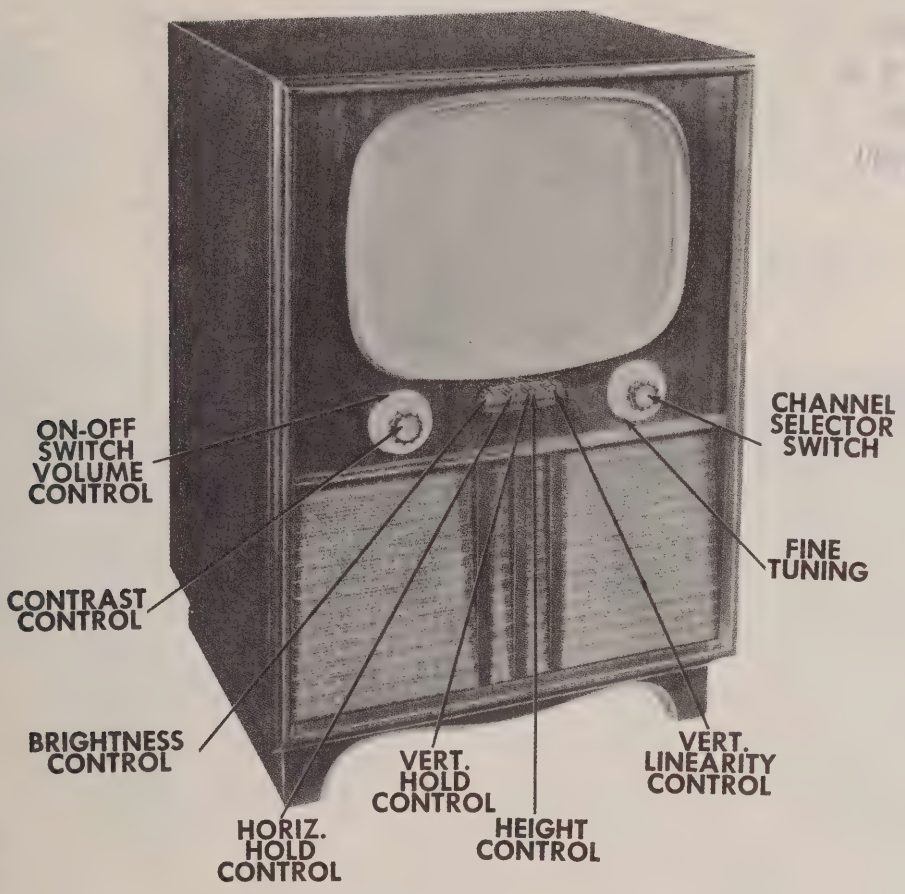

FIRESTONE MODEL 13-G-51

TRADE NAME	Firestone Models 13-G-51 (Code 307-1-9202A, AA) 13-G-52 (Code 307-1-9202B, BA)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET	Television Receiver
TUBES	Nineteen

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 1.6 Amp @ 117 Volts AC
TUNING RANGE - Channels 2 thru 13

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FIRESTONE MODELS 13-G-51,
13-G-52, (Code 307-1-9202A, AA, B, BA)

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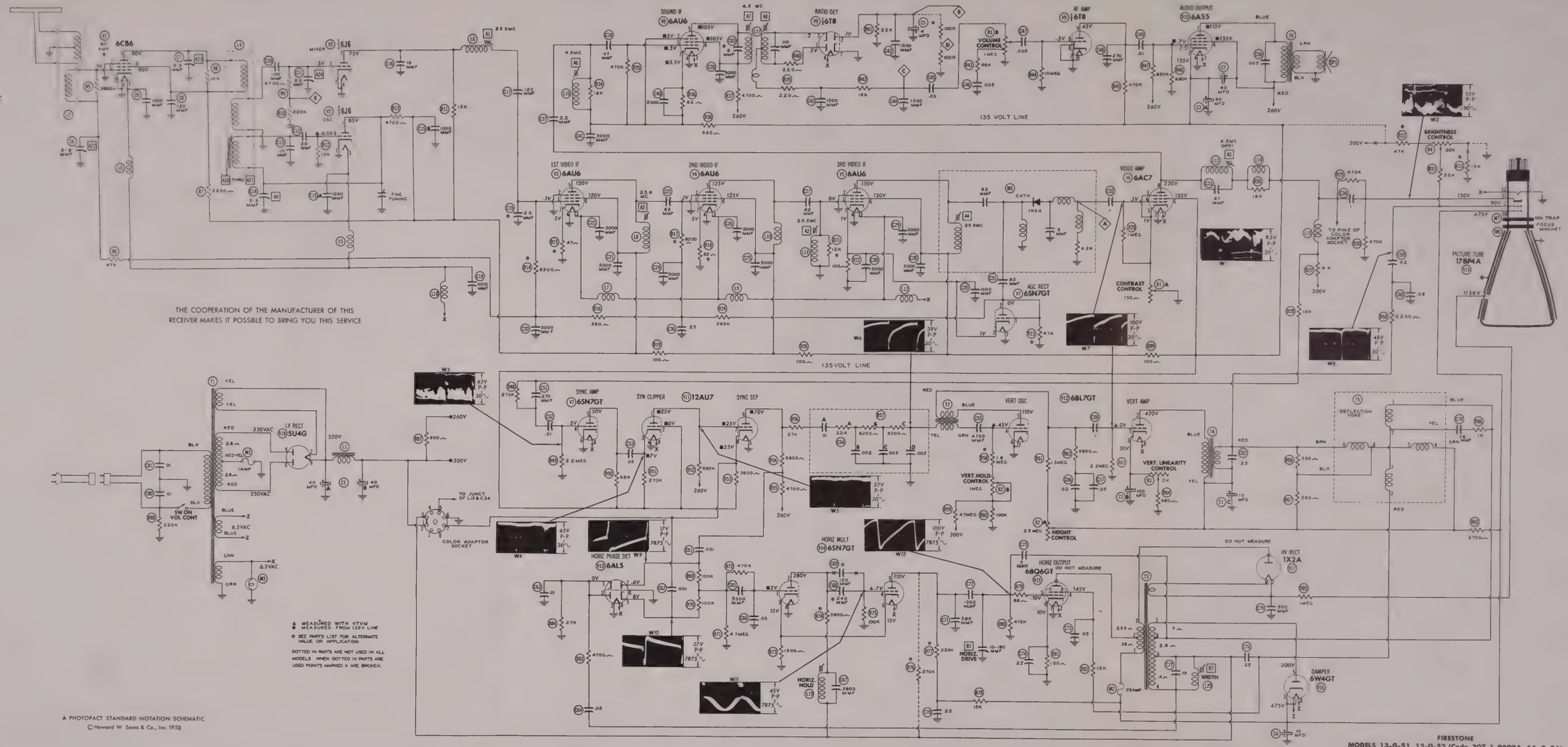
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
135 VOLT LINE
135VOLT LINE
SOUND IF V8 6AU6
RATIO DET V9 6T8
AF AMP V9 6T8
AUDIO OUTPUT V10 6A55
1ST VIDEO IF V2 6AU6
2ND VIDEO IF V4 6AU6
3RD VIDEO IF V5 6AU6
VIDEO AMP V6 6AC7
AGC RECT V7 6SN7GT
SYNC AMP V7 6SN7GT
SYN CLIPPER V11 12AU7
SYNC SEP
VERT OSC V12 6BL7GT
VERT AMP
HORIZ PHASE DET V13 6AL5
HORIZ MULT V16 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
DAMPER V16 6W4GT
HV RECT V17 1X2A
LV RECT V18 5U4G
MIXER V2 6J6
OSC V2 6J6
VOLUME CONTROL
CONTRAST CONTROL
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
HEIGHT CONTROL
HORIZ HOLD
HORIZ DRIVE
WIDTH
BRIGHTNESS CONTROL
PICTURE TUBE 17BP4A
ION TRAP
FOCUS MAGNET
DEFLECTION YOKE
TO PINS OF COLOR ADAPTOR SOCKET
COLOR ADAPTOR SOCKET
TO JUNCT. OF L13&C34
SW ON VOL CONT
FINE TUNING
DO NOT MEASURE
A MEASURED WITH VTVM
B MEASURED FROM 135V LINE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED x ARE BROKEN.
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MODELS 13-G-51, 13-G-52 (Code 307-1-9202A, AA, B, BA)

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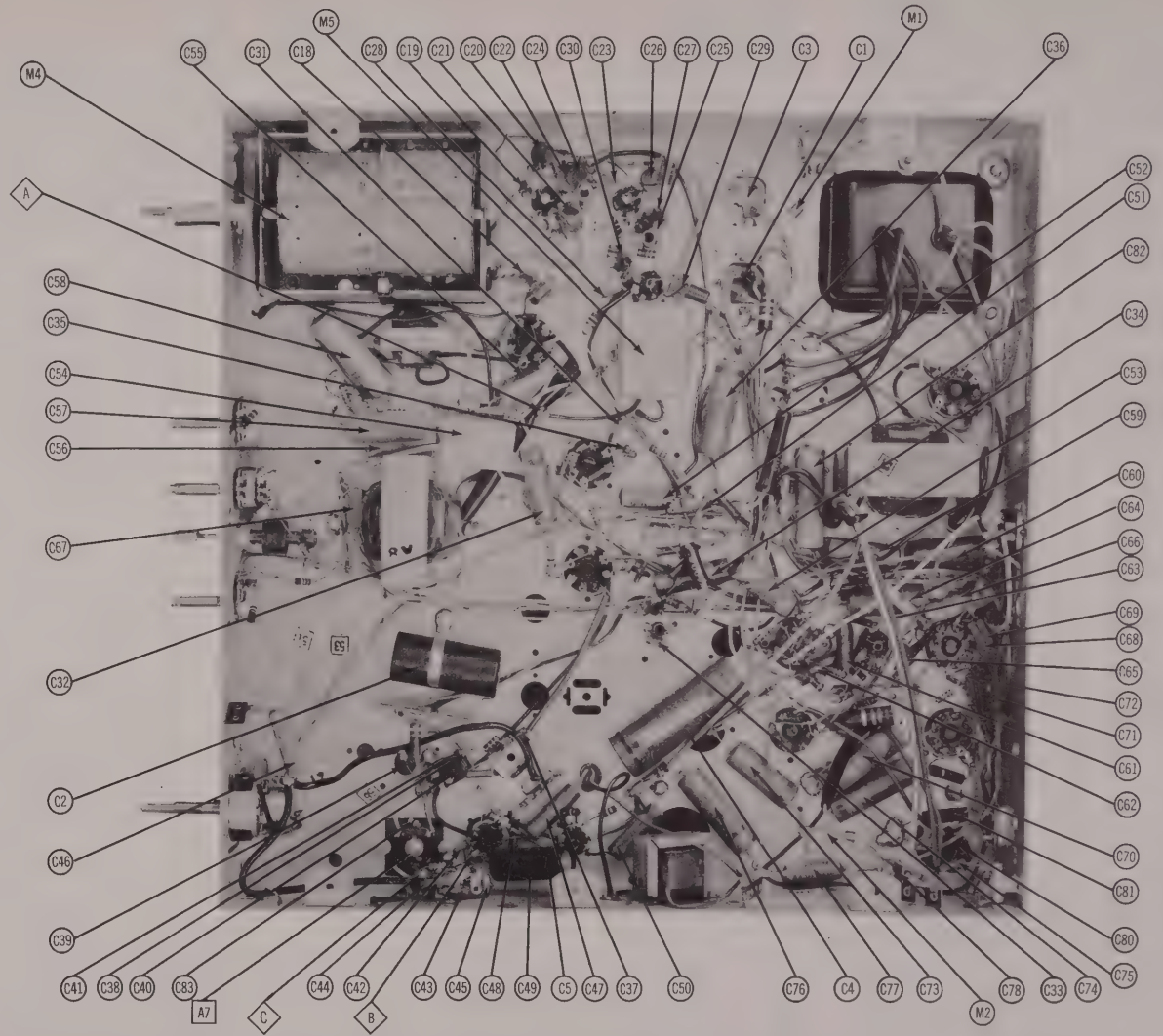
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

L. F [illegible]
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DENVER, COLORADO

BOTTOM VIEW

TOP VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed . This will disable the local oscillator tube and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C36, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	23.5MC (unmod.)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection
2.	"	"	25.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis .	25MC (10MC swp.)	22.25MC 26.75MC	Any	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A4 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to Pin 4, (Grid) of 6AC7, (V6). Low side to chassis.	4.5MC (unmod.)	Any	DC probe thru detector, (Fig.2), to Pin 11 of picture tube. Common to chassis.	A5	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to Pin 4, (Grid) of 6AC7, (V6). Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point (B). Common to chassis.	A6, A7	Adjust for max. deflection.
6.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modualted signal with 60∿ modualtion and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 4, (grid) of 6AC7, (V6). Low side to chassis.	4.5MC (450 KC Swp)	4.5MC	Any	Vert. Amp. to point (B). Low side to chassis.	A6, A7	Disconnect stabilizor C5. Adjust for maximum amplitude and symmetry as per fig. 3.
6.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A8	Reconnect capacitor C5. Adjust A8 so 4.5 MC occurs at center of crossover lines as per fig. 4. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel.
If adjustment of A9 will not bring all channels well within the range of fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel. that is off frequency. The channel strip adjustment are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50Ω.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A10	Adjust to place markers as shown in fig. 5.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC S wp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (E). Low side to chassis.	A22, A23 A24	Adjust for response curve similar to fig. 6. with markers above 90%.
9.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig 6. If markers fall below 70% on any channel make compromise adjustment of A22, A23, and A24 with channel selector set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

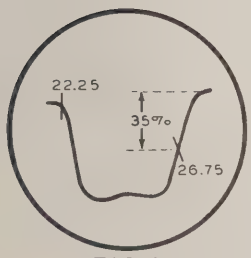


FIG. 1

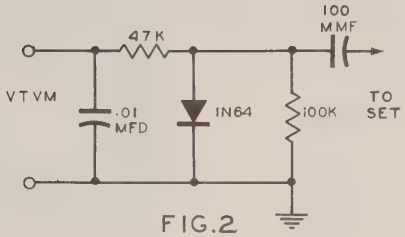


FIG. 2

FIG. 3

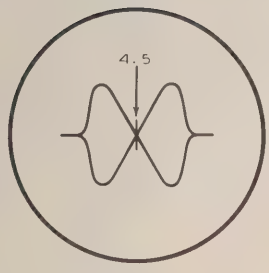


FIG. 4

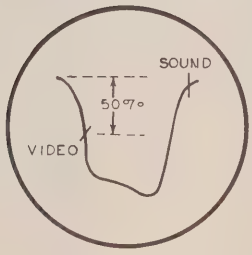


FIG. 5

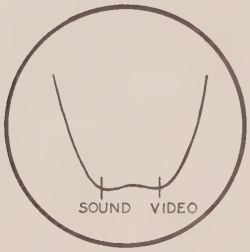


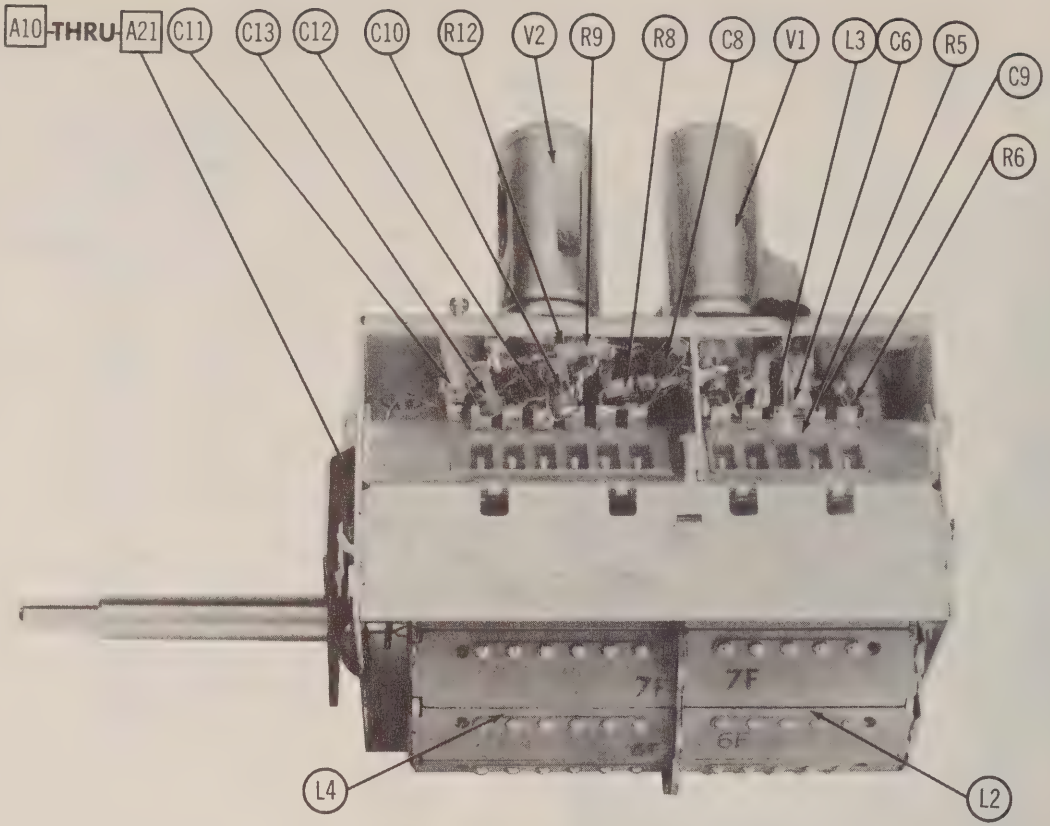
FIG. 6

RESISTANCE MEASUREMENTS

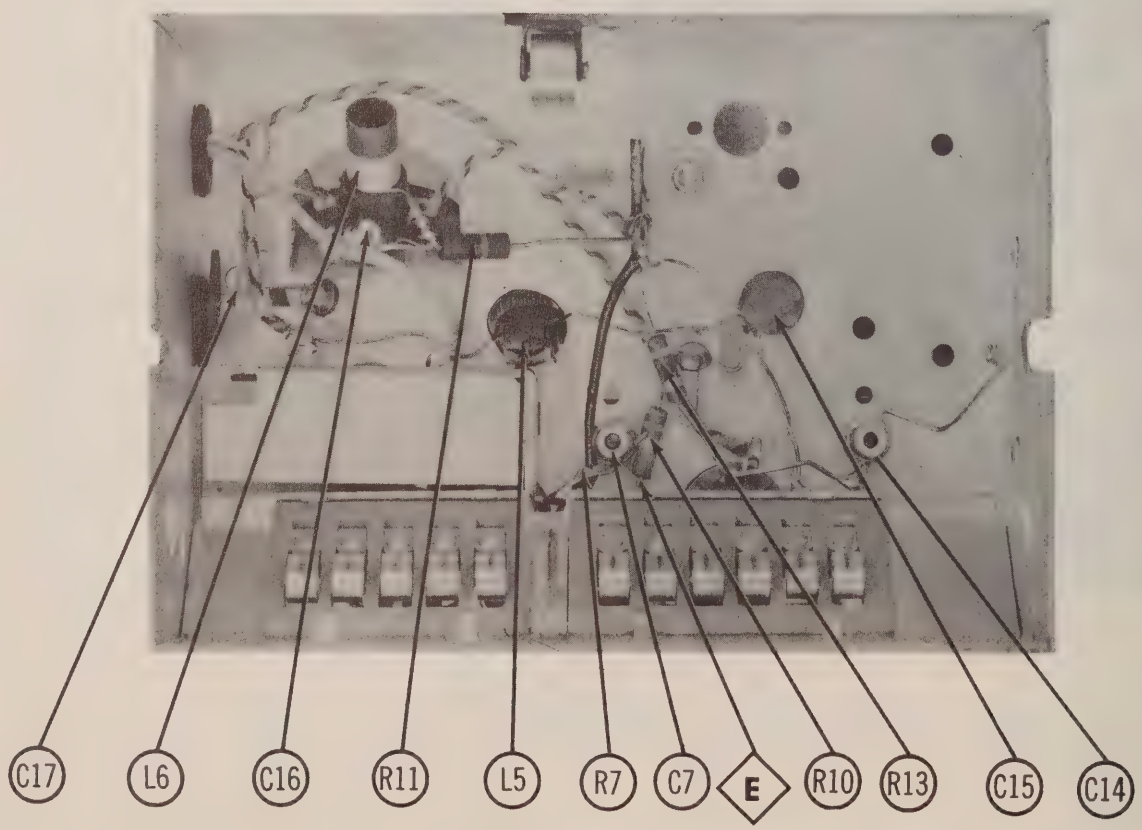
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	650KΩ	0Ω	.1Ω	0Ω	■2.5KΩ	■2.5KΩ	0Ω		
V 2	6J6	■5KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	600KΩ	0Ω	.1Ω	0Ω	■300Ω	■300Ω	47Ω		
V 4	6AU6	600KΩ	0Ω	.1Ω	0Ω	■200Ω	■200Ω	82Ω		
V 5	6AU6	.3Ω	0Ω	.1Ω	0Ω	■100Ω	■100Ω	100Ω		
V 6	6AC7	0Ω	0Ω	100Ω	1Meg	100Ω	■0Ω	.1Ω	†4KΩ	
V 7	6SN7GT	47KΩ	47KΩ	100Ω	2.2Meg	■68KΩ	0Ω	0Ω	.1Ω	
V 8	6AU6	■470KΩ	■680Ω	.1Ω	0Ω	†5.4KΩ	†5.4KΩ	■760Ω		
V 9	6T8	Inf	22KΩ	Inf	.1Ω	0Ω	0Ω	0Ω	10Meg	■470KΩ
V 10	6AS5	260KΩ	420KΩ	.1Ω	0Ω	420KΩ	†670Ω	†1.1KΩ		
V 11	12AU7	†680KΩ	■0Ω	■270KΩ	0Ω	0Ω	†12KΩ	†680KΩ	■3.9KΩ	.1Ω
V 12	6BL7GT	2.2Meg	#3.5KΩ	1.4KΩ	2.4Meg.	#2.4Meg	0Ω	0Ω	.1Ω	
V 13	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.8Meg	0Ω	4.8Meg		
V 14	6SN7GT	5.1Meg	†4KΩ	1.5KΩ	100KΩ	#345KΩ	1.5KΩ	.1Ω	0Ω	
V 15	6BQ6GT	Inf	.1Ω	Inf	†12KΩ	470KΩ	470KΩ	0Ω	100Ω	TOP CAP #36Ω
V 16	6W4GT	Inf	Inf	50KΩ	Inf	†75Ω	#0Ω	#0Ω	#.2Ω	
V 17	1X2A	PINS 1 THROUGH 9 HAVE INF RESISTANCE								TOP CAP #295Ω
V 18	5U4G	#0Ω	70KΩ	Inf	28Ω	.1Ω	26Ω	Inf	70KΩ	
V 19	17BP4A	0Ω	47KΩ	PIN 10 #0Ω	PIN 11 220KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V 18
# MEASURED FROM PIN 3 OF V 16
■ MEASURED FROM 135 VDC LINE

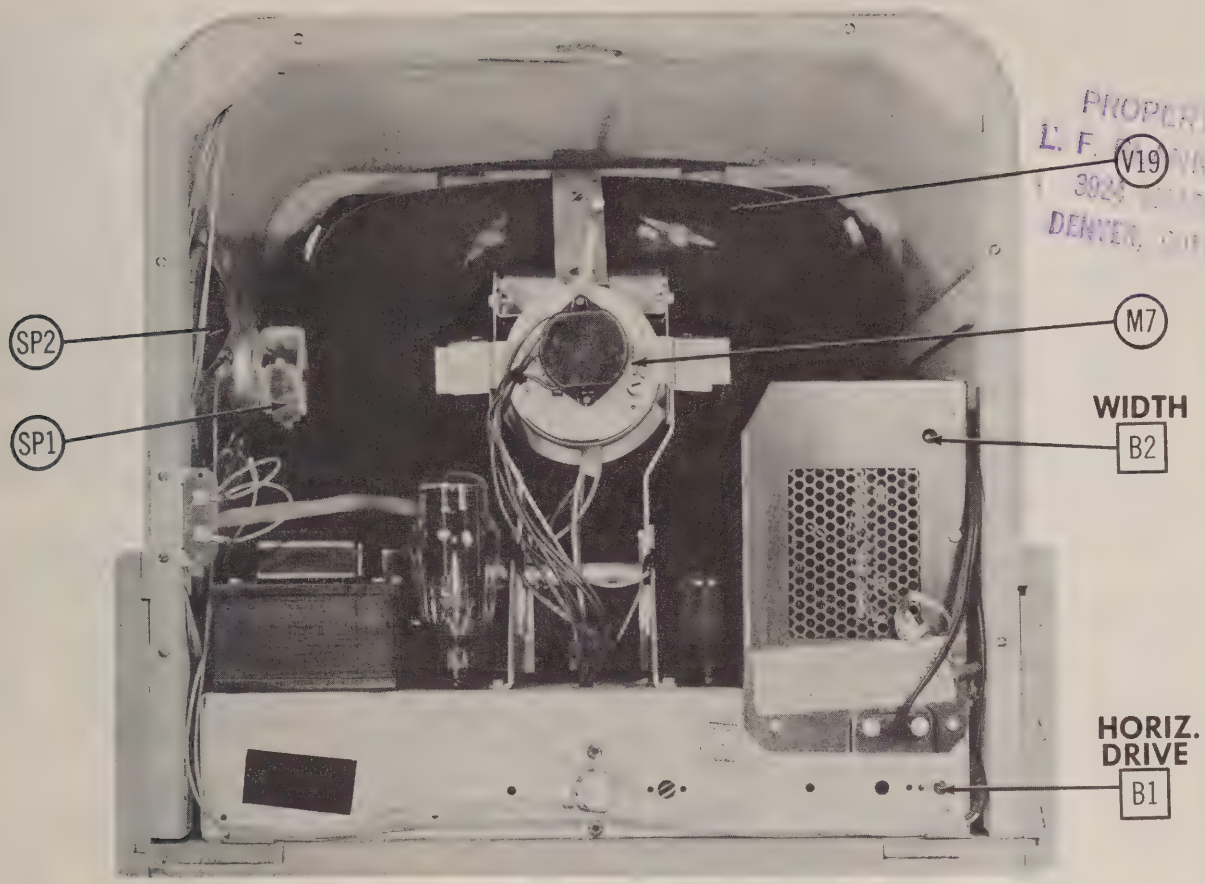


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. [illegible]
3924
DENVER, [illegible]



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold adjustment until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B1), counter-clockwise as far as possible without crowding the right half of the picture.

Adjust the width slug, (B2), until the picture is slightly wider than necessary to fill the mask horizontally.

Slight retouching of B1 may be necessary to obtain optimum width and horizontal linearity.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 screws and rear cover.
2. Remove 4 push-on type control knobs from front panel.
3. Disconnect and remove speaker.
4. Disconnect built-in antenna lead from cabinet.
5. Remove 6 chassis bolts, Remove chassis.

Note: For picture tube removal it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1A	RF Amp.	6CB6	6CB6	7CM	
B	RF Amp.	6AG5	6AG5	TBD	
C	RF Amp.	6BC5	6BC5	TBD	
V2	Converter	6J8	6J8	TBF	
V3	1st. Video IF Amp.	6AU6	6AU6	TBK	
V4	2nd. Video IF Amp.	6AU6	6AU6	TBK	
V5	3rd. Video IF Amp.	6AU8	6AU6	TBK	
V6	Video Amp.	6AC7	6AC7	8N	
V7	AGC Rectifier Sync Amp.	6SN7GT	6SN7GT	8BD	
V8	Sound IF Amp.	6AU8	6AU6	TBK	
V9	Ratio Det.-AF Amp	6T8	6T8	9E	
V10	Audio Output	6A5	6A5	7CV	
V11	Sync Clipper-Sync Separator Vert. Osc. - Vert. Amp.	12AU7	12AU7	9A	
V12		6BL7GT	6BL7GT	8BD	
V13	Horiz. Phase Det.	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6W4GT	6W4GT	6CG	
V17	HV Rectifier	1X2A	1X2A	FF	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: SYLVANIA No.		RTMA BASE TYPE	NOTES
V19	17BP4A	17BP4A		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C1A	⌀40	450	509001	AFH3-43		CG34		FP376.8	TVL-3785	
B	⌀40	450								
C	⌀10	450								
C2	40	300	180095	PR8450/40		BR4035		TC78	TVA-1611	
C3A	⌀80	250	509002	AFH3-142		B080		FP375	TVL-3722	
B	⌀100	50								
C4	10	600	508880	PR8600/10		BR4VG10		TC92		
C5	4	150	502497	PR8150/4		BR415		TC40	TVA-1402	Note 1
C6	5-9		509064		839-3			CT565A		
C7	.5-5		507696		839-3			CT565A		
C8	120		513439	SI120	D8-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C9	1000		513009	SI1000	D8-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C10	100		513440	SI100	D8-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	.5-3		507696		839-3			CT565A		
C12	30		513441	SI30NP0	TCZ-30		NP0K-300	N750K-300	5TCU-Q3	
C13	10		513442	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C14	.5-3		507696		839-3			CT565A		
C15A	1000		508576	BPD-2X001	DD-2-102	TM5DD1	SD2L-101	DCD-521	5HK-3D1	
B	1000									
C16	10		513444	SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C17	120		512542	SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C18	1000		513009	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C19	2.2		513001		TCZ-2.2		NP0K-2R2			Note 2
C20	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C21	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C22	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C23	82		513018	SI82	D8-820		GP2K-820		5GA-Q82	
C24	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C25	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C26	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C27	82		513018	SI82	D8-820		GP2K-820		5GA-Q82	
C28	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C29	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C30	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C31	82		513018	SI82	D8-820		GP2K-820		5GA-Q82	
C32	1	300	512033	P388-1	DF-104	PJ3EP1	PT401		2TM-P1	
C33	47		513438	SI47NP0	TCZ-47		NP0K-470	ZT-5447	5TCC-Q47	
C34	.1	400	512035	P488-1	DF-104	PTE4P1	PT401		4TM-P1	
C35	1000		513009	SI1000	D8-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C36	.25	200	512045	P488-25		PJ2P25	PT4025		2TM-P25	
C37	2.2		513001		TCZ-2.2		NP0K-2R2			
C38	47		513002	SI47	D6-470	TM5Q5	GP2K-470	UC-5447	5GA-Q47	
C39	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C40	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C41	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C42	1500		513010	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C43	1500		513010	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C44	1500		513010	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C45	.05	200	512027	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C46	.005	600	512007	P688-005	D6-502	PTE2D5	GP2-333-502	PT625	6TM-D5	
C47	.006	600	511007	P688-005	D6-502	PTE2D5	GP2-333-502	PT625	6TM-D5	
C48	270		513006	SI270	D6-271	SR5T3	GP2K-271	UC-5372	5GA-T27	
C49	.01	400	513008	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C50	.005	600	513007	P688-005	D6-502	PTE2D5	GP2-333-502	PT625	6TM-D5	
C51	270		513006	SI270	D6-271	SR5T3	GP2K-271	UC-5327	5GA-T27	
C52	.01	600	512013	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C53	.05	600	512029	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C54A	.01		P688-01		DD-103	PTE5S1	GP2-333-103	PT511	5HK-S1	*
B	.002		P688-002		PC-100	PTE5D2	GP2-333-202	PT522	510C1	
C	.005		P688-005			PTE5D5	GP2-333-502	PT525		
D	.005		P688-005			PTE5D5	GP2-333-503	PT525		
C55	4700	500	513533			1N4-005		MC8465	MD-25	
C56	.02	600	513019	P688-02	DF-303	PTE6S2		PT613	6TM-S3	
C57	.05	600	513206	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C58	.1	600	512027	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C59	.02	600	513019	P688-02	DF-303	PTE6S2		PT613	6TM-S3	
C60	.05	600	513081	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C61	.001	500	513001	P688-001	D6-101	PTE6D1	GP2L-102	PT621	6TM-D1	

PARTS LIST AND DESCRIPTIONS (CONT.)

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C62	.001	600	512001	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C63	.01	200	512009	P288-01	D6-103	PTE4S1	GP2-333-103	PT411	2TM-S1	
C64	.05	600	512031	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C65	5000		513013	BPD-005	D6-502	TM5D5	81L-005	DC-525	5HK-D5	
C66	.05	200	512027	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C67	1900	500	512540	1404-004		IDR5D4		MC8463	MD-34	
C68	240	500		1469-00025		5R5T25		MCB240		Note 3
C69	150	500		1469-00015		5R5T15		MCB236		Note 3
C70	.25	600	512049	684-25		PTE6P25		PT625	6TM-P25	
C71	390	500	512535	1469-0004		5R5T4		MCB243	MD-34	
C72	1000	500	512515	1468-001	D6-103	1W5D1	GP2L-102	MC255	1FM-21	
C73	.05	600	512031	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C74	.25	200	512045	P488-25		PJ2P25		PT4025	2TM-P25	
C75	5	1500	513026					MC550		
C76	.25	200	512045	P488-25		PJ2P25		PT4025	2TM-P25	
C77	.01	600	512013	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C78	56	1500	513027							
C79	500	20000	508868		TV3-502	HV20C		20DK-T5		
C80	.01	400	512255			6892GZKY-01		PT411	4TM-S1	
C81	.01	400	512255			6892GZKY-01		PT411	4TM-S1	
C82	.25	200	512045	P488-25		PJ2P25		PT4025	2TM-P25	
C83	5		513443							Note 3

Note 1. Models including letter "A" in series designating use 10MFD in this application (Part #505174).
Note 2. Not used in all Models.
Note 3. Some Models combine C68 and C89. Models including letter "B" in series designation use 390MMF and Models not having letter "B" use 470MMF.
♦ Items C54A, C54B, C54C, R57A, R57B and R57C are combined in one unit.
† Replaces Vert. Integrator Net. Install DD-103 in series with PC-100 input lead.
* Replaces Vert. Integrator Net. Install 5HK-S1 in series with 1D1C1 input lead.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	2	509314		RTV-309		WF751	Contrast - Panel - Wire Wound
B	1Meg	½					UR16-7254†	Volume & Switch - Rear
C							UB-26	
R2A	2.5Meg	½	508893		RTV-313		U2255L	Height - Panel
B	1Meg	½					UR16L	Vert. Hold - Rear
R3A	5000Ω	½	508891	QU-114	AM-10-8	AM-10	U-14	Vert. Linearity
B	Shaft			Not Req.	RS-2	AE-4	Not Req.	Attach to R3A
R4A	50KΩ	½	508889	QU-133	AG-44-8	AM-31	U-35	Brightness
B	Shaft			Not Req.	RS-3	AE-4	Not Req.	Attach to R4A

† Universal replacement - (Mallory exact duplicate part #UE20W8).

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R5	3900Ω	½	510147	BTS-3900	
R6	47K	½	510167	BTS-47K	
R7	2200Ω	½	510143	BTS-2200	
R8	10KΩ	½	510155	BTS-10K	
R9	4700Ω	½	510149	BTS-4700	
R10	220KΩ	½	510179	BTS-220K	
R11	15KΩ	½	510158	BTS-15K	
R12	10KΩ	½	510155	BTS-10K	
R13	4700Ω	½	510149	BTS-4700	
R14	82000 5%	½	510756	BTS-8200-5%	Note 1
R15	47Ω	½	510112		Note 2
R16	390Ω	½	510129	BTS-390	
R17	8200Ω 5%	½	510756	BTS-8200-5%	Note 3
R18	82Ω	½	510117	BTS-82	Note 4
R19	100Ω	½	510119	BTS-100	
R20	100Ω	½	510119	BTS-100	
R21	12KΩ 5%	½	510723	BTS-12K-5%	Note 3
R22	100Ω	½	510118	BTS-100	
R23	47KΩ	½	510168	BTS-47K	Note 5
R24	560KΩ	½	510186	BTS-560K	
R25	1Meg 5%	½		BTS-1Meg-5%	
R26	18KΩ 5%	½	510745	BTS-18K-5%	
R27	4000Ω	½	510753	1-3/4A-4000	
R28	100KΩ	½	510155	BTS-10K	
R29	470KΩ	½	510184	BTS-470K	
R30	470KΩ	½	510184	BTS-470K	
R31	22KΩ	½	510160	BTS-22K	
R32	47KΩ	½	510166	BTS-47K	Note 6
R33	15KΩ	½	510357	BTS-15K	Note 7
R34	18KΩ 5%	½	510159	BTS-18K-5%	
R35	470KΩ	½	510184	BTS-470K	
R36	82Ω	½	510117	BTS-82	
R37	4700Ω	½	510249	BTA-4700	
R38	680Ω	½	510134	BTS-680	
R39	220Ω	½	510124	BTS-220	
R40	220Ω	½	510124	BTS-220	
R41	22KΩ	½	510160	BTS-22K	
R42	18KΩ 5%	½	510159	BTS-18K-5%	
R43	82KΩ	½	510170	BTS-82K	
R44	10Meg	½	510197	BTS-10Meg	
R45	470KΩ	½	510184	BTS-470K	
R46	680KΩ 5%	½	510746	BTS-680K-5%	
R47	820KΩ 5%	½	510747	BTS-820K-5%	
R48	270KΩ	½	510180	BTS-270K	
R49	2.2Meg	½	510193	BTS-2.2Meg	
R50	68KΩ	½	510169	BTS-68K	
R51	270KΩ	1	510180	BTS-270K	
R52	680KΩ	½	510187	BTS-680K	
R53	39000 5%	½	510748	BTS-3900-5%	
R54	68000	½	510151	BTS-6800	
R55	47000 5%	½	510750	BTS-4700-5%	
R56	27KΩ	½	510162	BTS-27K	
R57A	22KΩ	½		BTS-22K	
B	82000	½	508062 ♦	BTS-8200	
C	82000	½		BTS-8200	
R58	1.8Meg 5%	½	510743	BTS-1.8Meg-5%	Note 8
R59	4.7Meg	½	510759	BTS-4.7Meg	
R60	100KΩ 5%	½	510172	BTS-100K-5%	
R61	1.5Meg	½	510752	BTS-1.5Meg	
R62	68000	½	510151	BTS-6800	
R63	2.2Meg	½	510193	BTS-2.2Meg	
R64	680Ω	½	510134	BTS-680	
R65	27000	2	510344	BTS-2700	
R66	560Ω	½	510132	BTS-560	
R67	560Ω	½	510132	BTS-560	
R68	2200Ω	½	510142	BTS-2200	
R69	100KΩ 5%	½	510751	BTS-100K-5%	
R70	100KΩ 5%	½	510751	BTS-100K-5%	
R71	4.7Meg	½	510759	BTS-4.7Meg	
R72	470KΩ	½	510184	BTS-470K	
R73	1500Ω	½	510139	BTS-1500	
R74	39000	½	510147	BTS-3900	Note 9
R75	100KΩ 5%	½	510751	BTS-100K-5%	
R76	270KΩ	½	510180	BTS-270K	Note 7
R77	330KΩ	½	510181	BTS-330K	Note 10
R78	15KΩ	2	510357	BTS-15K	
R79	68Ω	½	510116		
R80	470KΩ	½	510184	BTS-470K	
R81	100Ω	½	510118	BTA-100	
R82	12KΩ	½	510758	1-3/4A-12K	
R83	4700Ω	1	510248	BTS-4700	
R84	27KΩ	½	510163	BTS-27K	
R85	1Meg	½	510390		
R86	100Ω	½	510137	BTS-1000	
R87	600Ω	10	510741	1-3/4A-600	
R88	220KΩ	½	510179	BTS-220K	
R89	100Ω	½	510119	BTS-100	

Note 1. Some Models may use a 12KΩ resistor in this application.
Note 2. Some Models may use a 68Ω resistor in this application.
Note 3. Some Models may use a 10KΩ resistor in this application.
Note 4. Some Models may use a 47Ω resistor in this application.
Note 5. Some Models may use a 82000Ω resistor in this application.
Note 6. Some Models may use a 15KΩ resistor in this application.
Note 7. Not used in all Models.
Note 8. Some Models may use 2Meg resistor in this application.
Note 9. Some Models may use 3300Ω resistor in this application.
Note 10. Some Models may use 680KΩ resistor in this application.
♦ Items C54A, C54B, C54C, R57A, R57B and R57C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
T1	117VAC	640VCT	5VAC	6.3VAC ④ 7.4A	509380				R-39BC
	① 1.6A	.210ADC	③ 3A	⑤ 1.4A					
				6.3VAC ⑥ 1.2A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T2	153Ω	940Ω	508078	A-811 ①	A-3000 ①	TBO-1 ①	A-97X	Vert. Blocking Osc. Trans. Horiz. Output Trans.
T3	295Ω tapped ③ 36Ω	3.7Ω tapped ④ 40.3Ω	509384					
T4	800Ω tapped ⑤ 9Ω		509375	A-813 ①	A-3037	TSO-5	A-102X	Vert. Output Trans.
T5A	16Ω		509704	DT-8	MDF-70		T-31	Horiz. Deflection Coils
B	48Ω							Vert. Deflection Coils

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T6	4.3KΩ	3Ω	450Ω	.9Ω	509376	A-3077 ①	A-3930	RO-8 ①	S-5X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	6"	PM	3.0Ω	509398	8T-108 Mod. P6-X	6A15	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 (%)	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
L1	.210ADC	73Ω	2.9 Hy.	508341	C-2325	C-2991 ①	TH-3300 ①	C-13X ①

① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L2	Ant. Coil	0Ω	0Ω	507952		Channel #2 refer to Misc. for other channels
L3	Fil. Choke	0Ω		507970		
L4	RF, Mixer Grid & Osc. Coils	0Ω		507972		Channel #2 refer to Misc. for other channels
L5	Fil. Choke	0Ω		507971		
L6	1st. Video IF	.9Ω		509061		Slug Part #509062
L7	Fil. Choke	0Ω		507584		
L8	2nd. Video IF	.2Ω		507343	TV-103 *	Less Slug Part #507357
L9	Fil. Choke	0Ω		507584		
L10	RF Choke	2.4Ω		507367		
L11	3rd. Video IF	.2Ω		507343	TV-102 *	Less Slug Part #507357
L12	Fil. Choke	0Ω		507584		
L13	4.5MC Trap	1.8Ω		509603	TV-151	Slug Part #507357
L14	Peaking Coil	11.2Ω		509341	TV-185	
L15	Peaking Coil	15Ω		509342	TV-188	
L16	Sound IF	1Ω		509378		
L17	Ratio Det. Trans.	4Ω	1Ω CT	509706	TV-115 †	Tertiary .3Ω
L18	Fil. Choke	0Ω		507584		
L19	Horiz. Osc.	80Ω		508967	TV-163	Includes Slug Part#508963
L20	Width Coil	1.4Ω		509361	MWC-2	Includes Slug Part #507429

* Enlarge mounting hole.
† Use adaptor plate.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: FIRESTONE PART No. FUSE	FIRESTONE PART No. HOLDER	REPLACEMENT DATA: LITTELFUSE PART No FUSE	LITTELFUSE PART No HOLDER	REPLACEMENT DATA: BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG (P/T)	1Amp.	509517		318001 (3AG-1A.-P/T)		GJV-1	
M2	3AG (P/T)	1/4Amp	508063		318.250 (3AG-1/4A-P/T)		GJV-1/4	

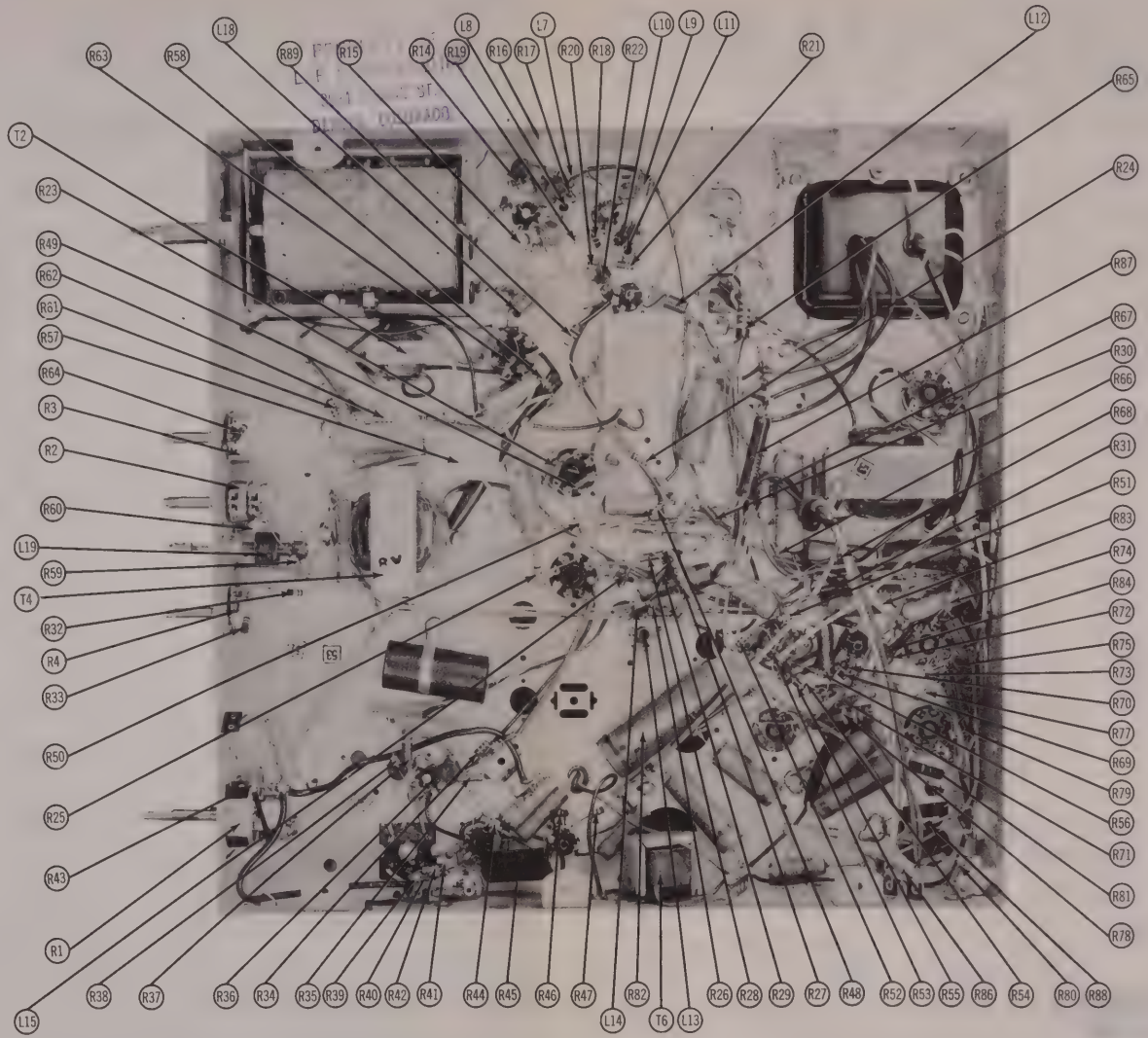
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA:	NOTES
M3	Bayonet	6-8	150MA	Brown	118921	118921	Type #47

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

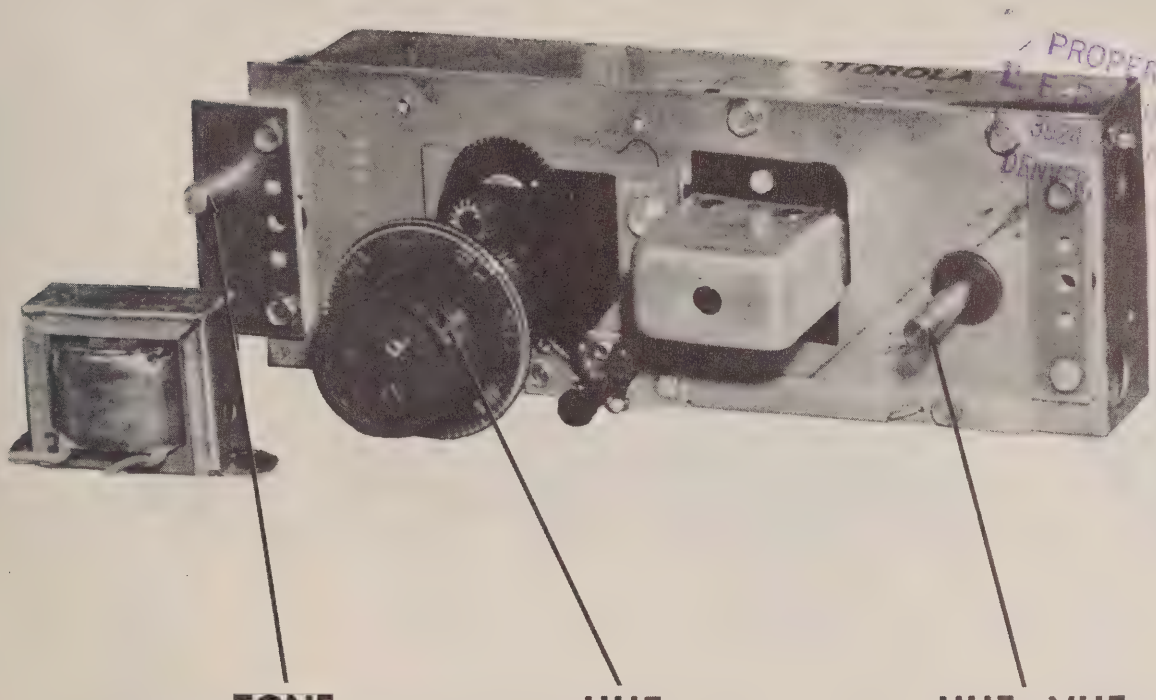
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M4	RF Tuner	508890	Complete with tubes
M5	4th. Video IF	509613	Less Slug
	RF Choke	507367	
	Capacitor	513016	82MMF
	Capacitor	513432	5MMF
	Crystal	509386	1N64
	Peaking	509340	
	Peaking	509342	
	Resistor	510153	8.2KΩ
			Video Det. Assy.
M6	Focus Magnet	509644	
M7	Ion Trap	509688	
B1	Trimmer	508071	Horiz. Drive, 10-160MMF
	Ant. Coils	507953	Channel #3
	Ant. Coils	507954	Channel #4
	Ant. Coils	507955	Channel #5
	Ant. Coils	507956	Channel #6
	Ant. Coils	507957	Channel #7
	Ant. Coils	507958	Channel #8
	Ant. Coils	507959	Channel #9
	Ant. Coils	507960	Channel #10
	Ant. Coils	507961	Channel #11
	Ant. Coils	507962	Channel #12
	Ant. Coils	507963	Channel #13
	RF, Mixer Grid & Osc. Coil	507973	Channel #3
	RF, Mixer Grid & Osc. Coil	507974	Channel #4
	RF, Mixer Grid & Osc. Coil	507975	Channel #5
	RF, Mixer Grid & Osc. Coil	507976	Channel #6
	RF, Mixer Grid & Osc. Coil	507977	Channel #7
	RF, Mixer Grid & Osc. Coil	507978	Channel #8
	RF, Mixer Grid & Osc. Coil	507979	Channel #9
	RF, Mixer Grid & Osc. Coil	507980	Channel #10
	RF, Mixer Grid & Osc. Coil	507981	Channel #11
	RF, Mixer Grid & Osc. Coil	507982	Channel #12
	RF, Mixer Grid & Osc. Coil	507983	Channel #13
	Knob	509348	Channel Selector
	Knob	509349	Fine Tuning
	Knob	509368	Contrast
	Knob	509369	Off/On - Volume
	Back Cover	162409	



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

MOTOROLA MODELS TK-17M, TK-19M, TK-20M, TK-22M, TK-23M, TK-24M

MOTOROLA MODELS TK-17M, TK-19M, TK-20M, TK-22M, TK-23M, TK-24M



MOTOROLA MODELS TK-17M, TK-19M, TK-20M, TK-22M, TK-23M, TK-24M

TRADE NAME	Motorola Model TK-17M, TK-19M, TK-20M, TK-22M, TK-23M, TK-24M
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Custom Built UHF Converter for Operation With Specific Motorola Receivers (See Text Below)
TUBES (Two)	Types 6AF4 RF Osc., 6BK7 IF Amp.
POWER SUPPLY	250-280 Volts DC "B" Supply & 6.3 Volts AC (Fil. Supply)
TUNING RANGE	All 70 UHF Channels

MODEL	DESIGNED FOR MOTOROLA TV CHASSIS
TK-17M	TS-214, 228, 236, 307, 351, 401 (No Filament Transformer) TS-314, 315, 325, 326 (Includes Filament Transformer)
TK-19M	TS-292, 324, 395, 408
TK-20M	TS-400, 410
TK-22M	TS-119D
TK-23M	TS-216
TK-24M	TS-501

THIS EQUIPMENT IS PRE-ALIGNED AT THE FACTORY AND IS VERY STABLE AND NORMALLY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Oscillator	6AF4	6AF4	7DK	
V2	IF Amplifier	6BK7	6BK7	9AJ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	470		21K400940	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C2	470		21K400940	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C3	3		21A720035							
C4	12		21R114073				N330K-120			
C5	39		21R115978							
C6	1000		21R780599	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C7	.5		21K83994							
C8	1000		21A712386							
C9	62		21R410028							
C10	800		21K115034	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C11	150		21R400932	BPD-00015	D6-151	TM5T15	GP2K-151	UC-5312	5GA-T15	
C12	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C13	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C14	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C15	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C16	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C17	220		21R115905	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C18	220		21R115905	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1 Meg	½	18K712161	Q11-137	AG-61-S	B-69	U-54	Tone-Note
B	Shaft		Not Req.	Not Req.	RS-3	Not Req.	Not Req.	Attach to R1A

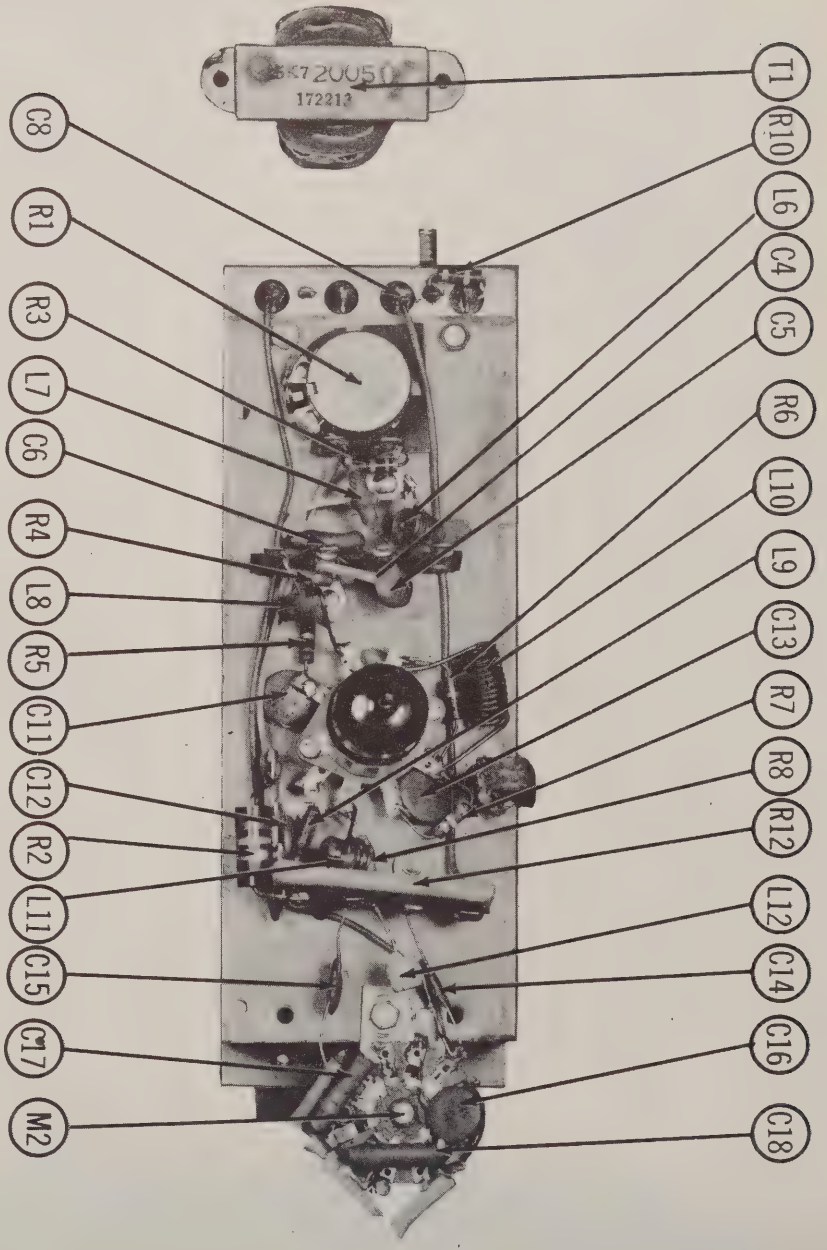
Note This is not in the TT-28 circuit, but is mounted on the converter chassis.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	56KΩ	2	6R5592	BTB-56K	
R3	68Ω	½	6R2039		
R4	47KΩ	½	6R6048	BTS-47K	
R5	68Ω	½	6R2039		
R6	1000Ω	½	6R6229	BTS-1000	
R7	470KΩ	½	6R6377	BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R8	3900Ω	½	6R5659	BTS-3900	
R9	18KΩ	½	6R5591	BTS-18K	
R10	2700Ω	½	6R5577	BTS-2700	
R11	2200Ω	2	6R5687	BTB-2200	
R12	8700Ω	3	17K710950		

CHASSIS—REAR VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117 VAC @ .05A	6.3VAC .33A			25K720050 25K720048 ①	P-6134	P-2944	FO-615	F-52X

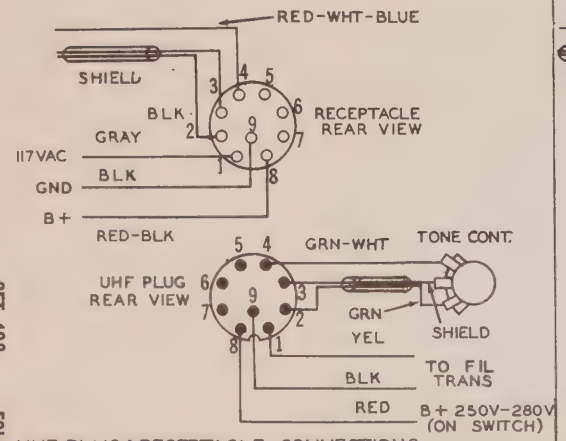
① Alternate filament transformer.

COILS (RF-IF)

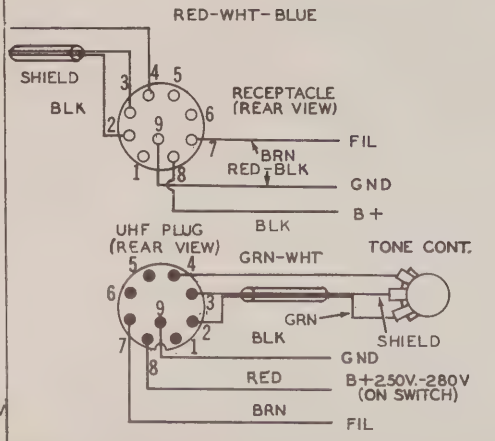
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L1	Ant. Coil	0Ω		24A711504		Tapped
L2	Osc. Coil	0Ω		24B711595		Less core, part #1A711455
L3	Fil. Choke	0Ω		24K712254		
L4	Fil. Choke	0Ω		24K712254		
L5	Cathode Choke	0Ω		24K712253		
L6	RF Coil	0Ω		24K711472		Tapped
L7	RF Choke	1.8Ω		24K712103		
L8	RF Grid Coil	0Ω		24K711473		
L9	Fil. Choke	.1Ω		24A711337		
L10	Cathode Coil	0Ω		24K711474		
L11	IF Pre-Amp. Output Coil	0Ω		24C711471		
L12	Conv. Output Trans.	.1Ω		24A790033		Tapped

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Crystal	48B711922 48B711923	Mixer Alternate
M2	Switch	40B711467	UHF-VHF Selector

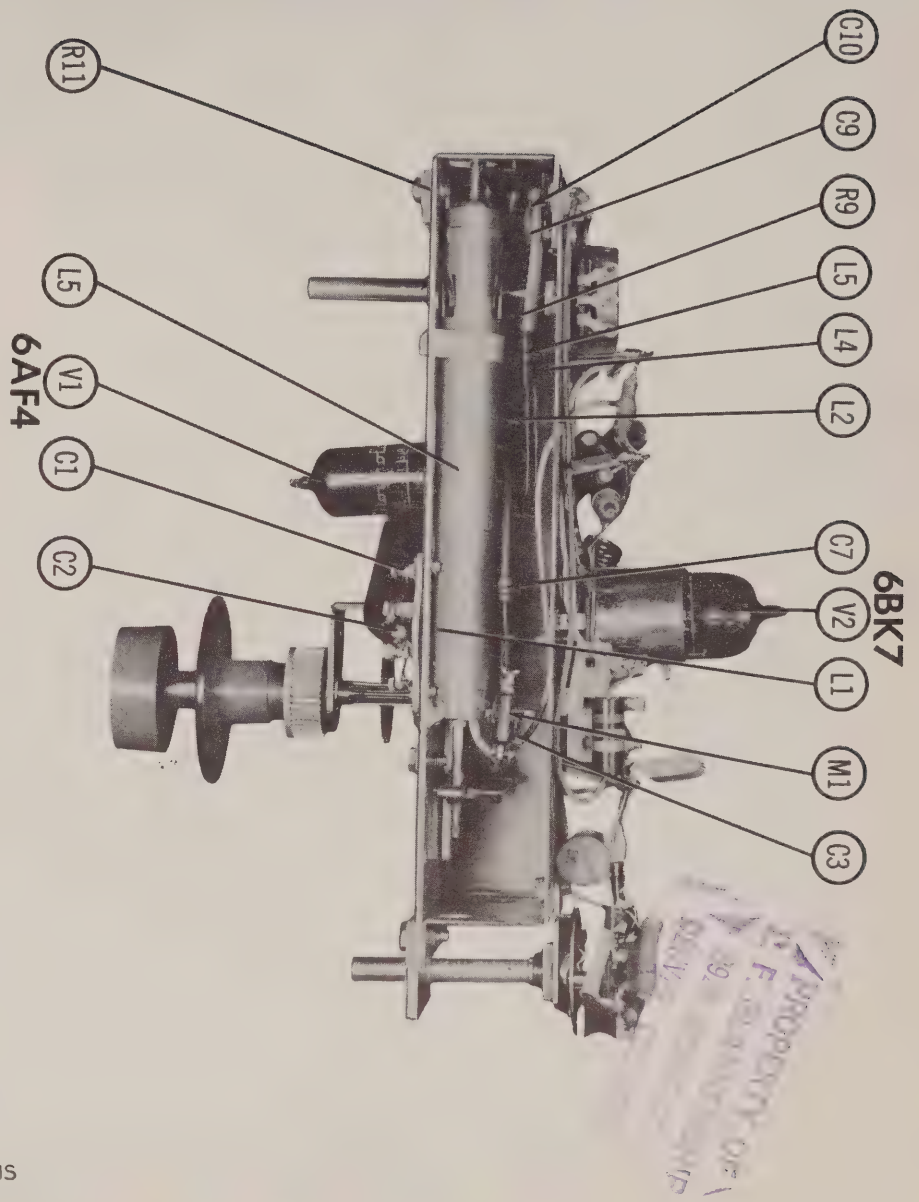


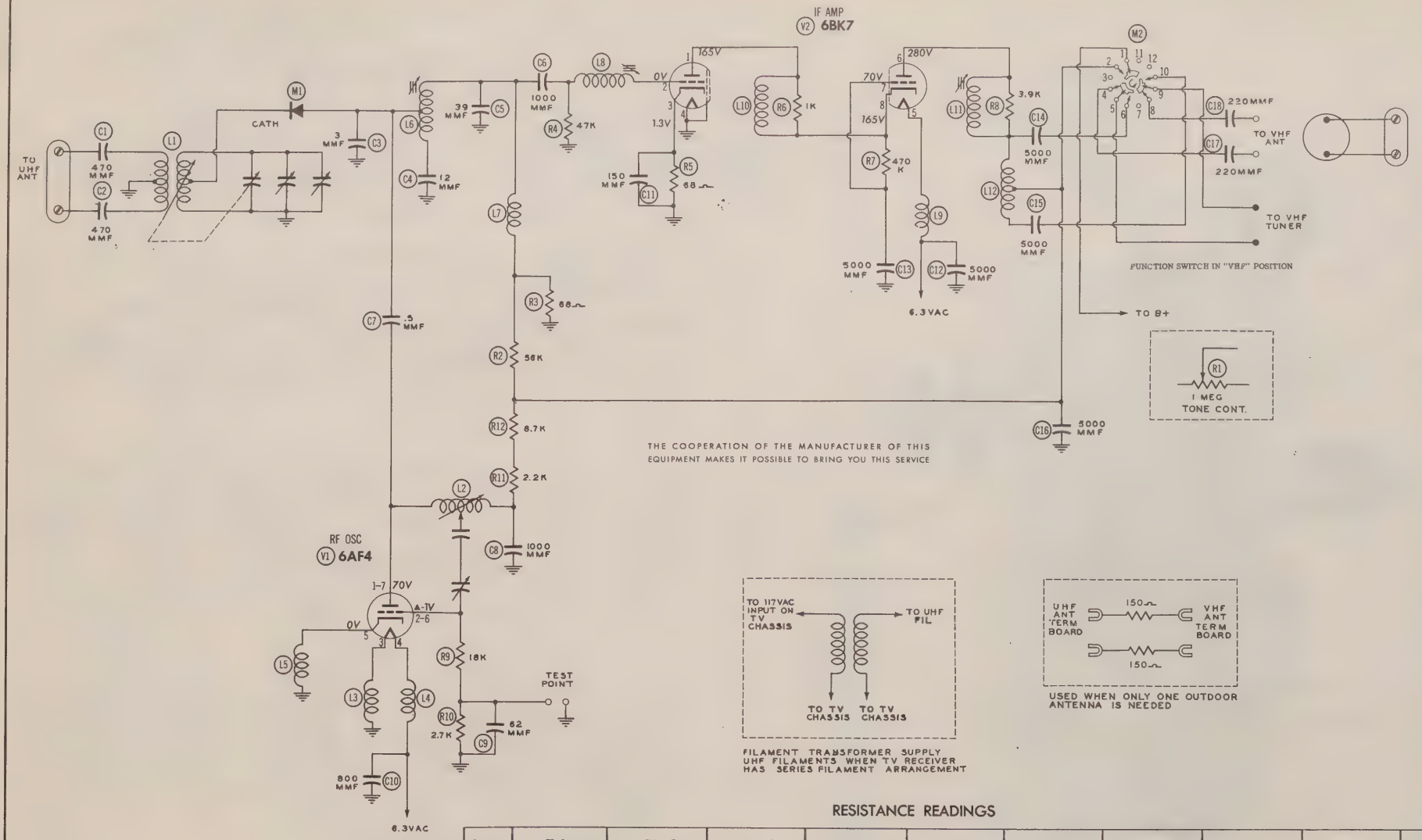
UHF PLUG & RECEPTACLE CONNECTIONS (SERIES FILAMENTS)



UHF PLUG & RECEPTACLE CONNECTIONS (PARALLEL FILAMENTS)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	†11KΩ	21KΩ	0Ω	.5Ω	0Ω	21KΩ	†11KΩ		
V 2	6BK7	INF	47KΩ	68Ω	0Ω	.5Ω	†.1Ω	INF	INF	0Ω

MEASURED WITH VHF & UHF SELECTOR (M2) IN UHF POSITION
† MEASURED FROM CONTRACT #1 OF M2

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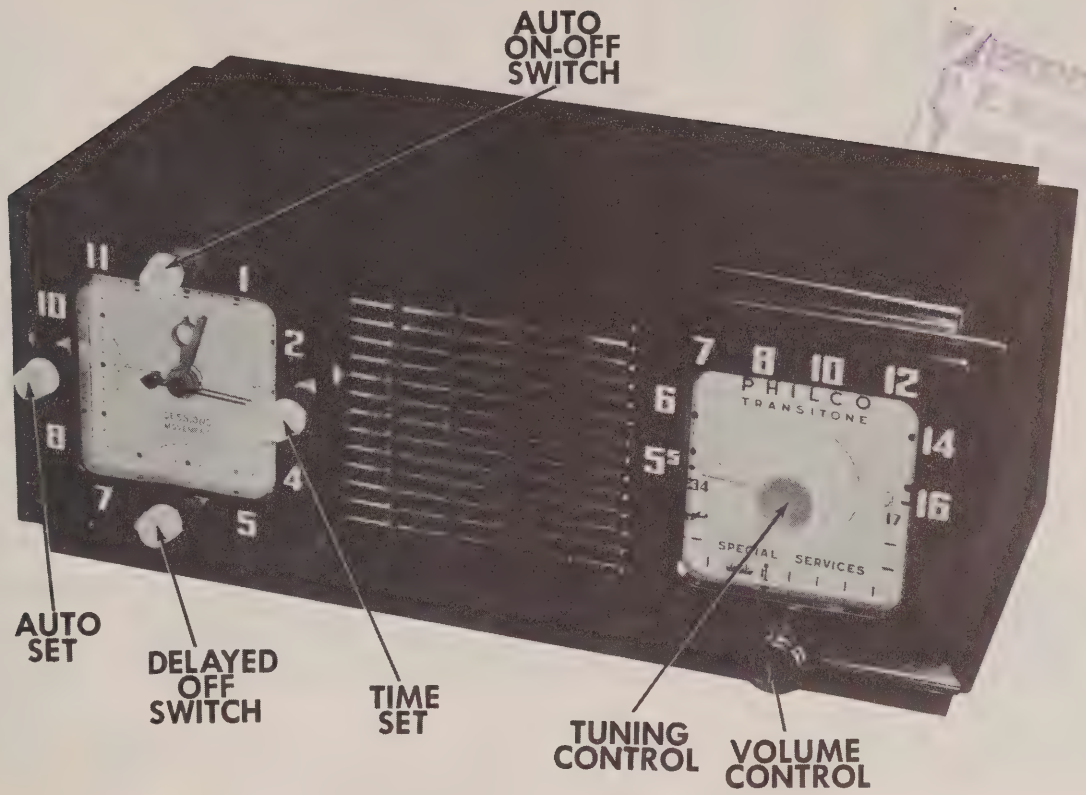
PHILCO
MODELS 53-700, 53-700-I, 53-701, 53-701-I



PHILCO
MODELS 53-700, 53-700-I, 53-701, 53-701-I

PHILCO MODEL 53-701

TRADE NAME	Philco Models 53-700, 53-701, 53-700-I, 53-701-I
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 35C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	.22 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC
SPECIAL SERVICES	1700-3400 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400%Mod)	Broad-cast	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2.		Loop	1620 KC	"	1620 KC	"	A5	To set tuning gang to 1620 KC open fully and insert a .006 inch, non-metallic shim between heel of rotor & top of stator plates. Close tuning gang to touch shim, then remove shim without disturbing gang setting. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500 KC	"	1500 KC	"	A6	Adjust for maximum output,
4.		"	3200 KC	Special Services	3200 KC	"	A7	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp	12AV6	12AV6	7BT	
V4	Audio Output	35C5	35C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	30	150	30-2575-36	PRS150/30-30-30		BBRT 32-V215		3N534	TVA-3444	Note 3
B	25	150								
C	20	150								
C2	944	500	30-1220-65							
C3	47		30-1230-4	SI47	D6-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	
C4	7.5		30-1224-83							
C5	.05	200	45-3505-28	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C6	.05	200	45-3505-28	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C7	270	500		1469-0003		5R5T3		MCB241	MS-33	Note 1
C8	5000		30-1238-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C9A	5000									
B	250		♦30-6001		♦PC-70		♦1406-01		♦104C4	
C										
C10	.022	400	45-3505-43	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C11	.047	400	45-3505-62	489ZXP-05		PJ4S47		PT4147	4TM-S47	
C12	.2	400		484-2				TP429		Note 2

Note 1. Not used in all Models.
Note 2. Some Models use .1MFD in this application (Part #45-3505-47).
Note 3. Model 53-700 uses Mfgr's part #30-2575-34
♦ Items C9A, C9B, C9C, R7A, R7B are combined in one unit.
When replacing items separately, C9B and C9C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	33-5565	Q13-133	AG-60-Z	B-60	U-48	Volume - See Note
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A

Note. Model #53-700 uses control (Part #33-5566-41)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R2	22KΩ	½	66-3228340	BTS-22K	
R3	4700Ω	½	66-2748340	BTS-4700	
R4	2.2Meg	½	66-5228340	BTS-2.2Meg	
R5	47KΩ	½	66-3478340	BTS-47K	
R6	10Meg	½	66-6108340	BTS-10Meg	
R7A	500KΩ	½	♦30-6001		
B	500KΩ	½			

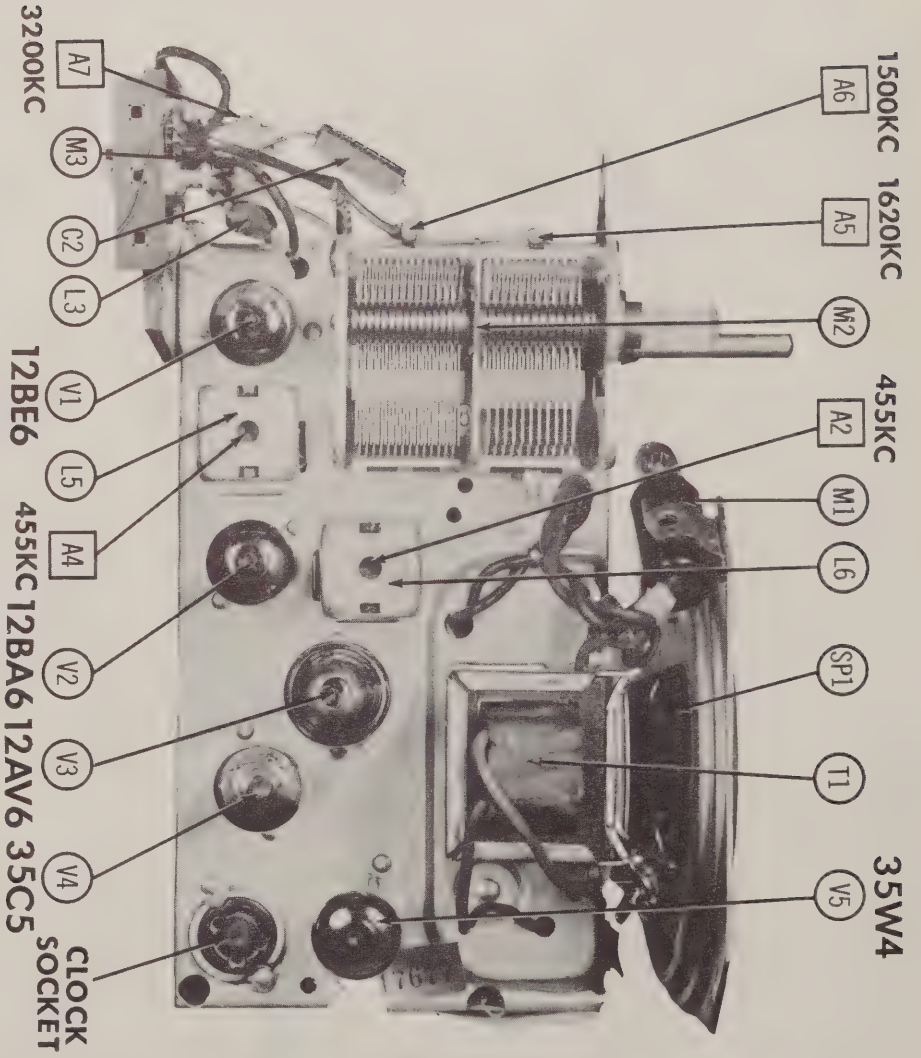
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R8	150Ω	½	66-1158340	BTS-150	
R9	220Ω	1	66-1224340	BTA-220	
R10	1000Ω	½	66-2108340	BTS-1000	
R11	*	*	33-1343-3		

* Special resistor - 880Ω cold, 100Ω hot
♦ Items R7A, R7B, C9A, C9B, C9C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2KΩ	3.4Ω	234Ω	.92Ω	Part of Spkr.	A-3332 ①	A-3025 ①	RO-2 ①	S-2X ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	36-1627-23	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PHILCO PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω		76-7757		
L2	Sw. Ant. Coil	1.3Ω		32-4561-3		
L3	BC Osc. Coil	1.2Ω	7Ω	32-4453-6		
L4	Sw. Osc. Coil	3.2Ω		32-4562-2		
L5	Input IF	15Ω	15Ω	32-4161A	BC-352	
L6	Output IF	15Ω	15Ω	32-4240A	BC-355	

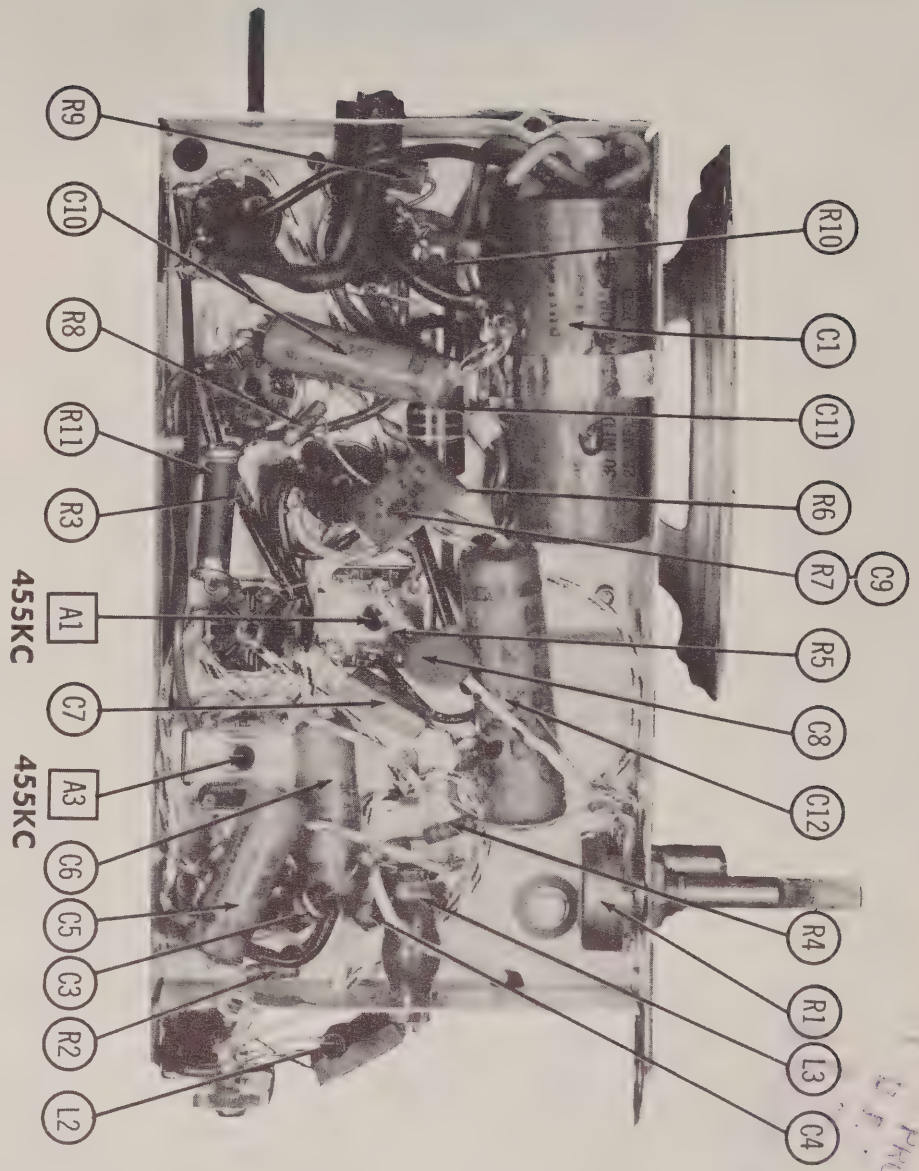
DIAL LIGHTS

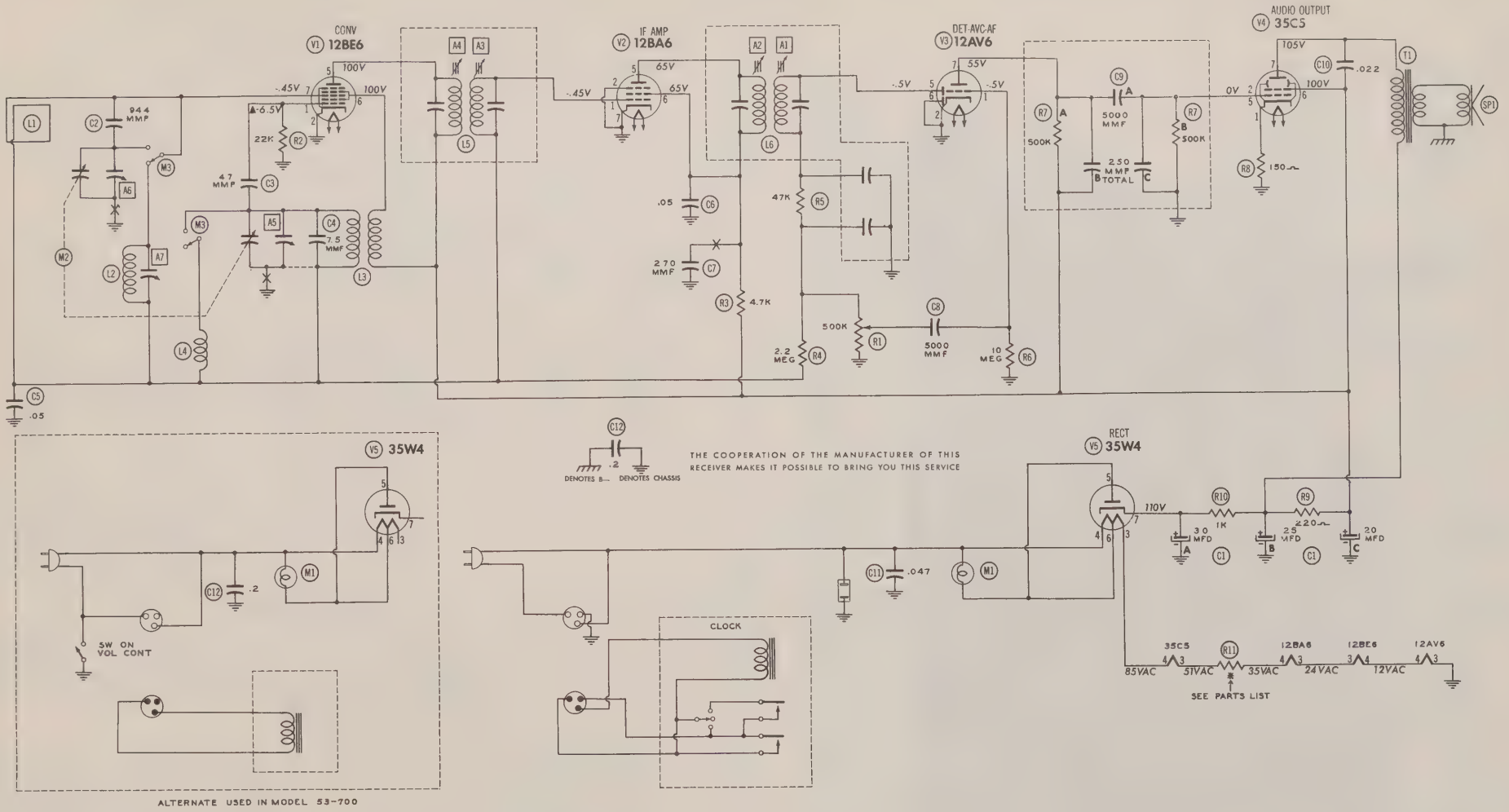
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M1	Bayonet	6-8	.25	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	Tuning Capacitor	31-2751-13	32-495MMF, 20-170MMF
M3	Switch	42-1796-2	Band Switch, (DPDT Slide)
	Trimmer Capacitor	31-6473-29	Antenna (Special Services)
	Cabinet	10924	Model 53-700
	Cabinet	10924-3	Model 53-700-1
	Cabinet	10924-1	Model 53-701
	Cabinet	10924-2	Model 53-701-1
	Knob	54-4983-1	Clock, Models 53-700 (1 used), 53-701 (4 used)
	Knob	54-4983	Clock, Models 53-700-1 (1 used), 53-701-1 (4 used)
	Knob	54-4978	Tuning
	Knob	27-4815-10	(off-on) - Volume
	Back & Loop Assy.	76-7757-1	Models 53-700, 53-700-1
	Back & Loop Assy.	76-7757	Models 53-701, 53-701-1
	Dial Glass	54-4977	All Models
	Clock	41-2041	Models 53-700, 53-700-1
	Clock	41-2041-1	Models 53-701, 53-701-1

CHASSIS—BOTTOM VIEW





IF = 455 KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	0Ω	24Ω	12Ω	†1.2KΩ	†1.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	24Ω	36Ω	†5.9KΩ	†5.9KΩ	
V 3	12AV6	10Meg	0Ω	0Ω	12Ω	547KΩ	0Ω	†500KΩ
V 4	35C5	150Ω	500KΩ	770Ω	805Ω	500KΩ	†1.2KΩ	†454Ω
V 5	35W4	†220Ω	†220Ω	805Ω	840Ω	836Ω	836Ω	250KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER.
† MEASURED FROM PIN 7 OF V5.
NOTE: FILAMENT RESISTANCES MEASURED WITH CLOCK DISCONNECTED.

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODEL 2BX63 (Ch. RC-1115)

RCA VICTOR
MODEL 2BX63 (Ch. RC-1115)

RCA VICTOR
MODEL 2BX63 (Ch. RC-1115)

TRADE NAME	RCA Victor Model 2BX63 (Ch. RC-1115)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Five)	Types 1T4 RF Amp., 1R5 Conv., 1T4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC or 9 Volts "A" Supply & 90 Volts "B" Supply in Pack Form
RATING	.15 Amp. @ 117 Volts AC or 54 MA @ 9 Volts DC & 10 MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Turn tuning gang fully closed and set pointer 1-1/4 inches from end of dial plate.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005MFD	High side to pin 6 (grid) of 1T4 (V3). Low side to B-.	455 KC (400∿ Mod)	Point of non-interference near 1600 KC	Across voice coil	A1, A2,	Disconnect loop. Adjust for maximum output.
2.	"	High side to pin 6 (grid) of 1R5 (V2). Low side to B-.	"	"	"	A3, A4	"
3.		Loop	1620 KC	Tuning gang fully open	"	A5	Replace chassis bottom cover and install chassis in cabinet. Battery should be in place. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1400 KC	Tune to 1400 KC signal	"	A6, A7	Adjust for maximum output.
5.		"	600 KC	Tune to 600 KC signal	"	A8	Connect 22KΩ across RF section of tuning gang. Adjust for maximum while rocking tuning gang.
6.		"	"	"	"	A9	Remove 22KΩ resistor. Adjust for maximum output. Repeat steps 3 thru 6 for most accurate results.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

RCA VICTOR
MODEL 2BX63 (Ch.RC-1115)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	1T4	1T4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amplifier	1T4	1T4	6AR	
V4	Det-AVC-AF Amp.	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	150	76659	AFH4-32		D027		FP412.2	R1280	
B	■40	150						TC2501		
C	▲160	25								
D	40	25								
C2	82		71514	SI82	D6-820		GP1K-820	UC-5482	5GA-Q82	
C3	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C4	.047	200	73558	P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C5	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C6	.047	200	73558	P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C7	56	500	39622							
C8	.0033	400	73795	P688-033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D33	
C9	4		73153				NP0K-040			
C10	.047	200	73558	P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C11	82		71514	SI82	D6-820		GP1K-820	UC-5482	5GA-Q82	
C12	.047	200	73558	P288-047	DF-503	PJ2S5		PT4147	2TM-S47	
C13	.01	200	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C14	.022	200	73562	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C15	180	500	51416	1468-0002	D6-181	5W5T2	GP2K-181	MC237	1FM-32	
C16	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C17	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C18	.0039	400	73796	P688-004	D6-392	PTE6D4	GP2-333-392	PT624	6TM-D4	
C19	.047	400	75071	489ZXP-05		PJ4S47		PT4147	4TM-S47	
C20	.1	400	73551	P488-1		PTE4P1		PT401	4TM-P1	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	74285	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

RESISTORS

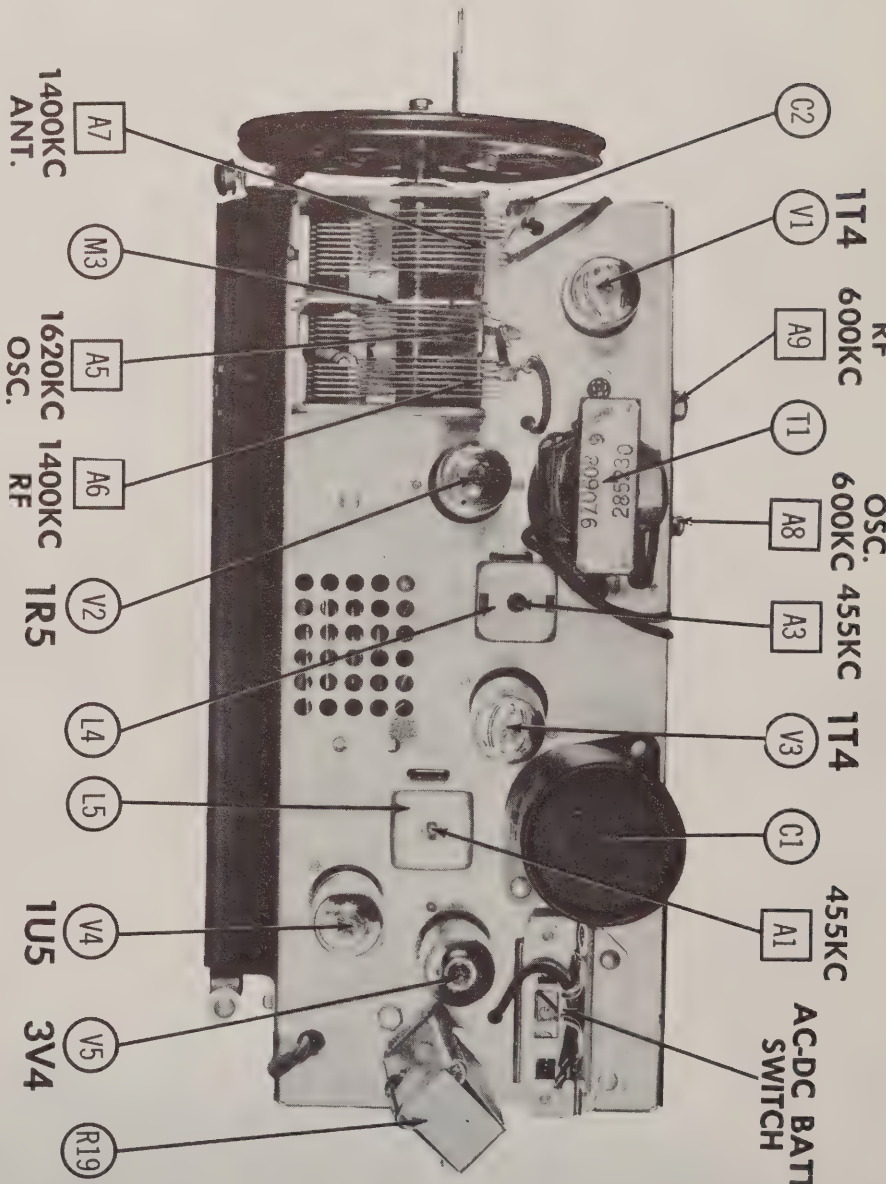
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	6.8Meg	½	503568	BTS-6.8Meg	
R3	1.8Meg	½	503518	BTS-1.8Meg	
R4	2700Ω	½	503227	BTS-2700	
R5	1000Ω	½	504210	BTS-1000	
R6	100KΩ	½	504410	BTS-100K	
R7	1800Ω	½	503218	BTS-1800	
R8	5.6Meg	½	503556	BTS-5.6Meg	
R9	3.3Meg	½	503533	BTS-3.3Meg	
R10	68KΩ	½	504368	BTS-68K	
R11	10 Meg	½	504610	BTS-10Meg	
R12	4.7Meg	½	504547	BTS-4.7Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R13	220KΩ	½	503422	BTS-220K	
R14	27KΩ	½	503327	BTS-27K	
R15	1 Meg	½	504510	BTS-1 Meg	
R16	1500Ω	½	503215	BTS-1500	
R17	1800Ω	½	503218	BTS-1800	
R18	33Ω	1	514033		
R19	2650Ω	7	74319	1 3/4A-2500	
R20	15KΩ	½	504315	BTS-15K	
R21	3300Ω	1	513233	BTS-3300	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	8.4KΩ	3.8Ω	350Ω	.41Ω	71047	A-3879	A-2900	RO-16	S-11X ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.8Ω	77055	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	RCA Victor PART No.	MERIT PART No.	
L1	Loop Ant.	3.8Ω		77068		
L2	RF Coil	100Ω	6.5Ω	74992		Secondary Tapped @ 2.2Ω
L3	Osc. Coil	1.2Ω	6.2Ω	73114		
L4	Input IF	22Ω	22Ω	73129	BC-352	
L5	Output IF	12.5Ω	14Ω	75487	BC-355	

SELENIUM RECTIFIER

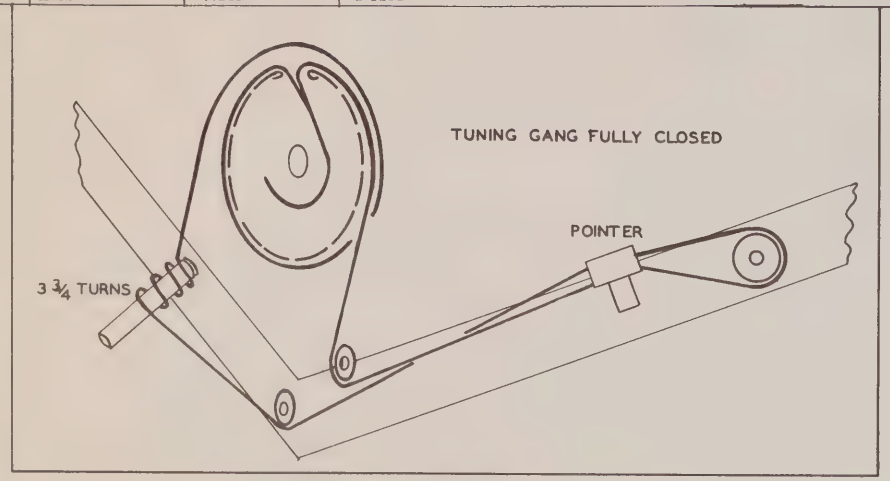
ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	RCA Victor PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.061A	74322	NB5	5M4	1003	6S75	

BATTERIES

ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9A/90B	VS 057W			756			T6Z60	

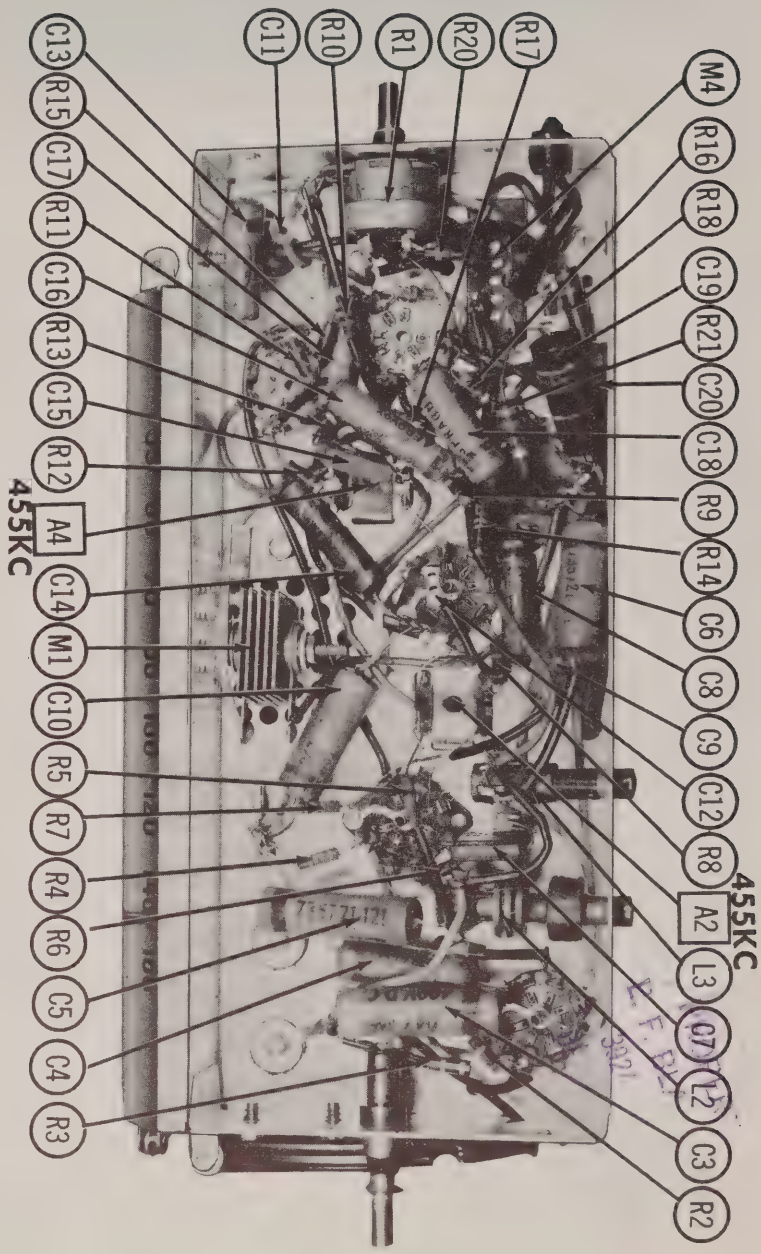
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Tuning Capacitor	77054	82-360MMF, 20-200MMF, 20-100MMF (Includes Drum)
M4	Switch	71039	Power Change-over
	Case	77065	Stripped
	Grille	77066	
	Back	77060	With strikes
	Handle	77063	
	Dial Window	77067	
	Knob	77248	2 Used



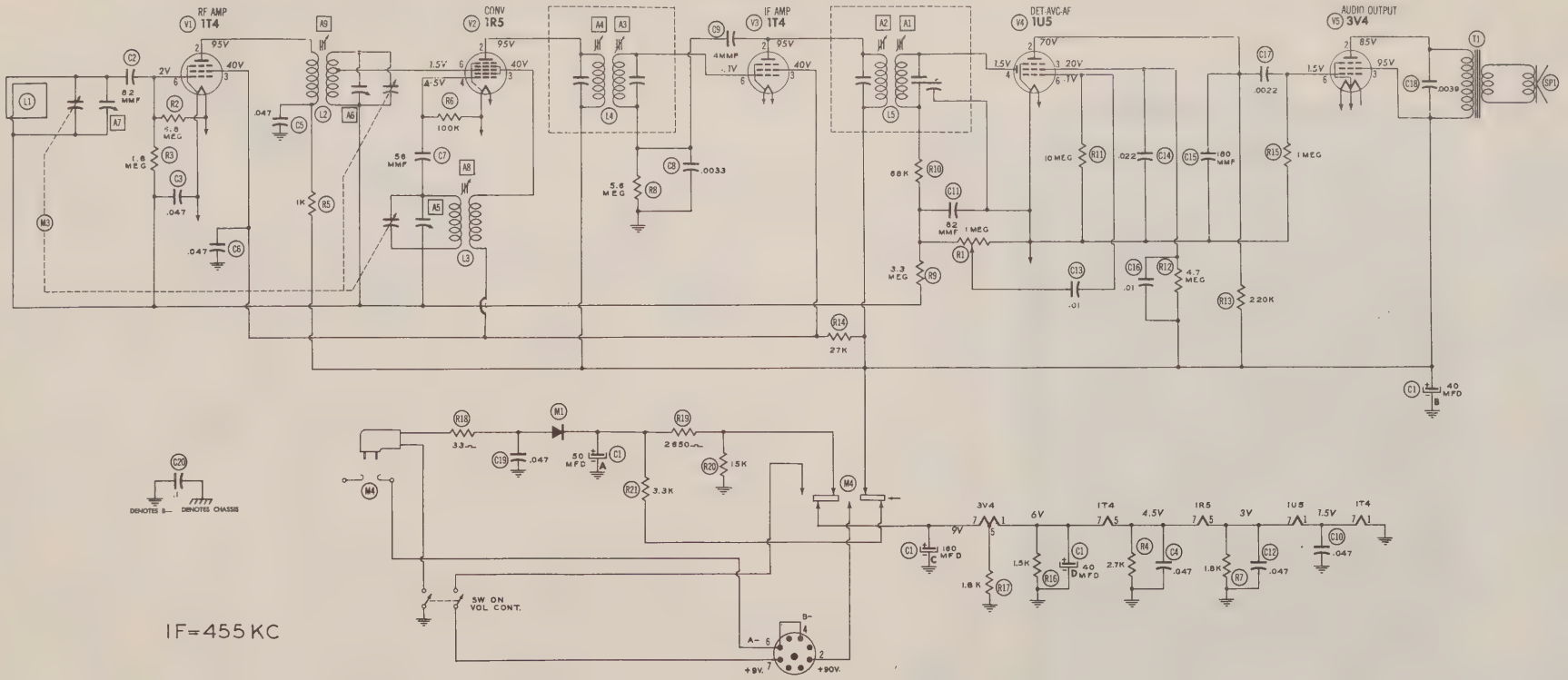
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 2BX63 (Ch. RC-1115)

RCA VICTOR MODEL 2BX63 (Ch. RC-1115)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1T4	*	†4.3KΩ	†30.3KΩ	INF	*	3.2Meg	*
V 2	1R5	*	†3.3KΩ	†30.3KΩ	100KΩ	*	3.2Meg	*
V 3	1T4	*	†3.3KΩ	†30.3KΩ	†30.3KΩ	*	5.6Meg	*
V 4	1U5	*	†223KΩ	†4.7Meg	900KΩ	INF	10Meg	*
V 5	3V4	*	†3.6KΩ	†3.3KΩ	INF	*	1 Meg	*

▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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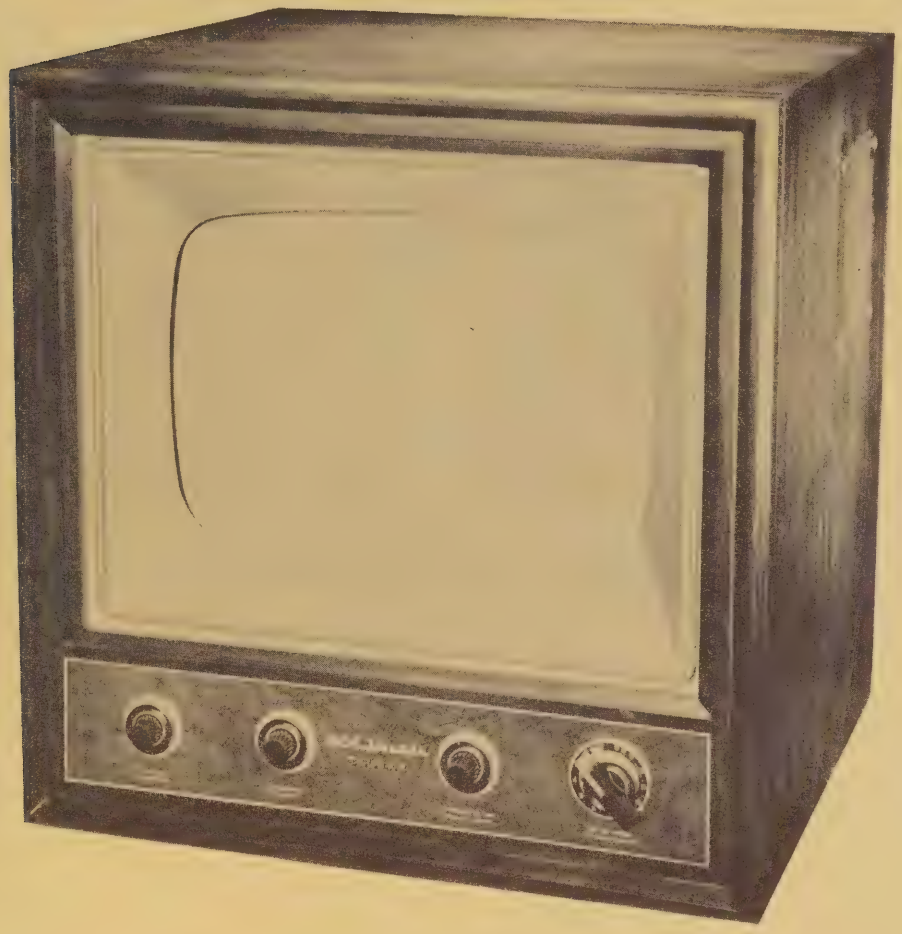

MODEL 17T250DE

RCA VICTOR MODELS
17T250DE, 17T261DE (Ch. KCS74)

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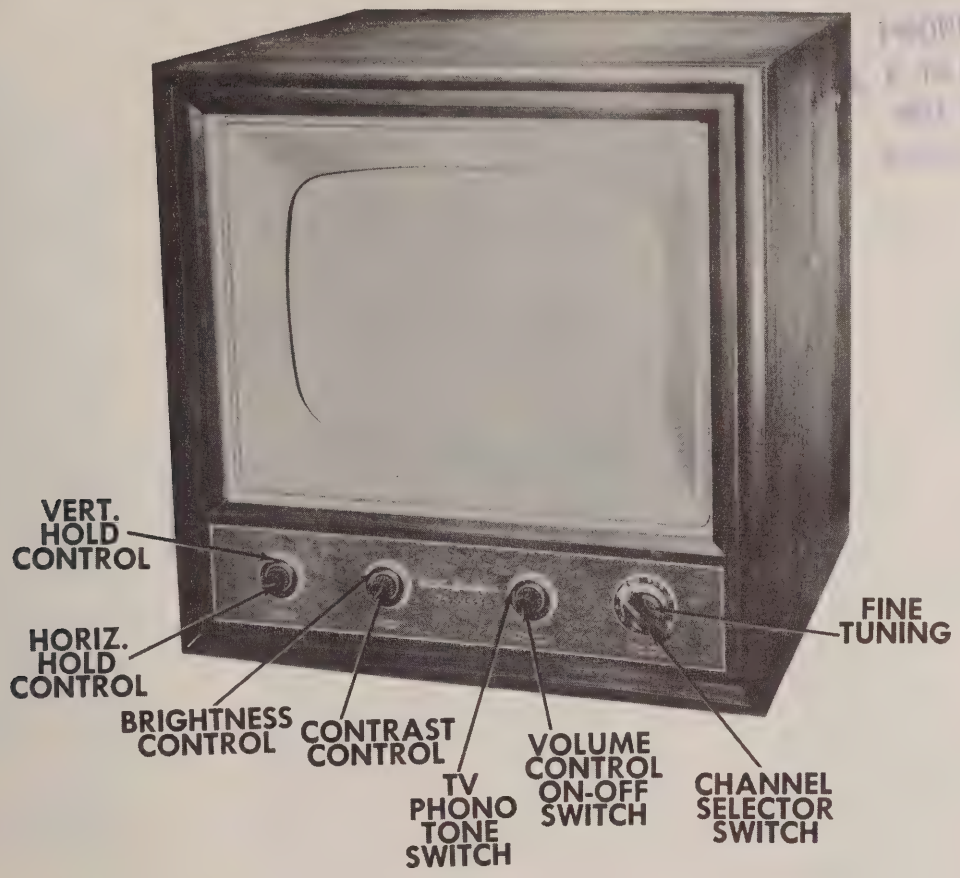

RCA VICTOR MODELS
17T250DE, 17T261DE (Ch. KCS74)

RCA VICTOR MODEL 17T250DE (Ch. KCS74)

TRADE NAME	RCA Victor Models 17T250DE, 17T261DE (Ch. KCS74)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC - 60 Cycle — RATING 1.78 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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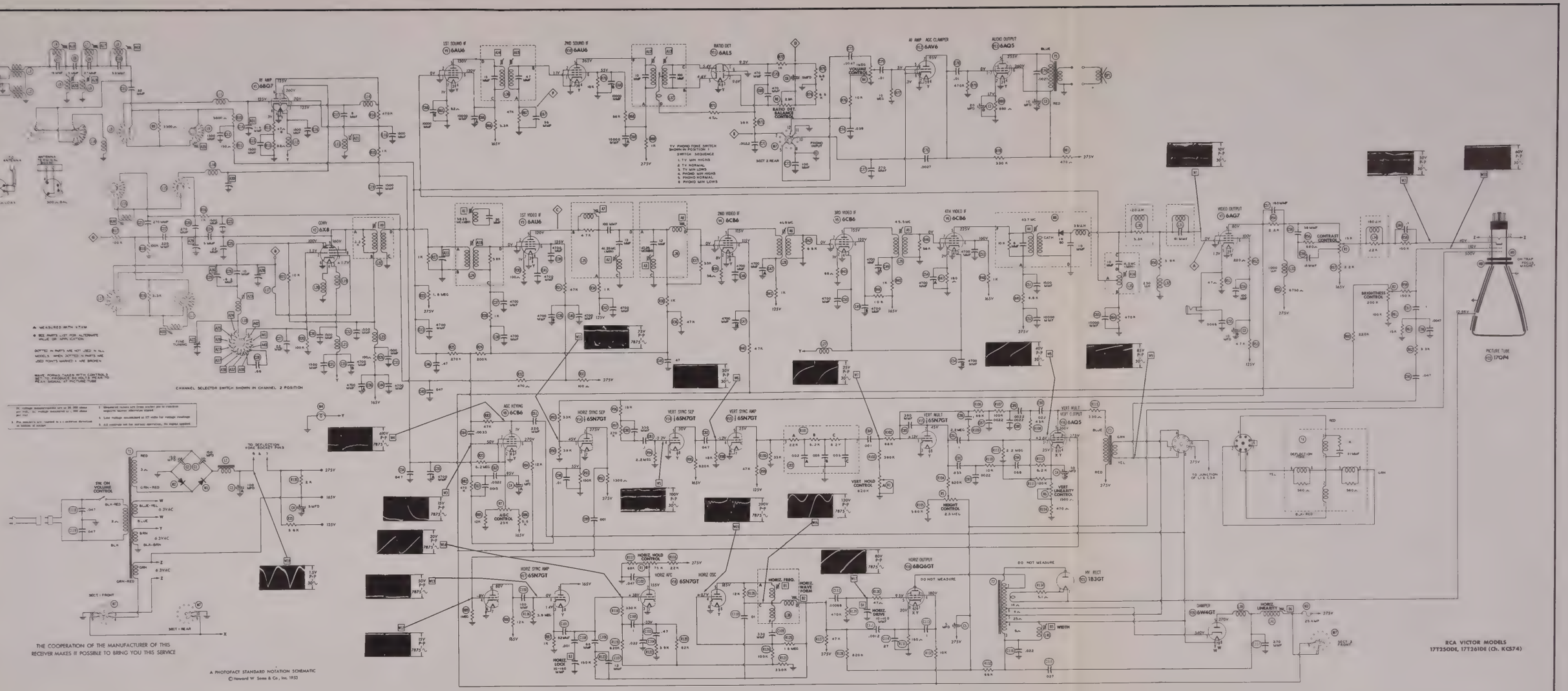
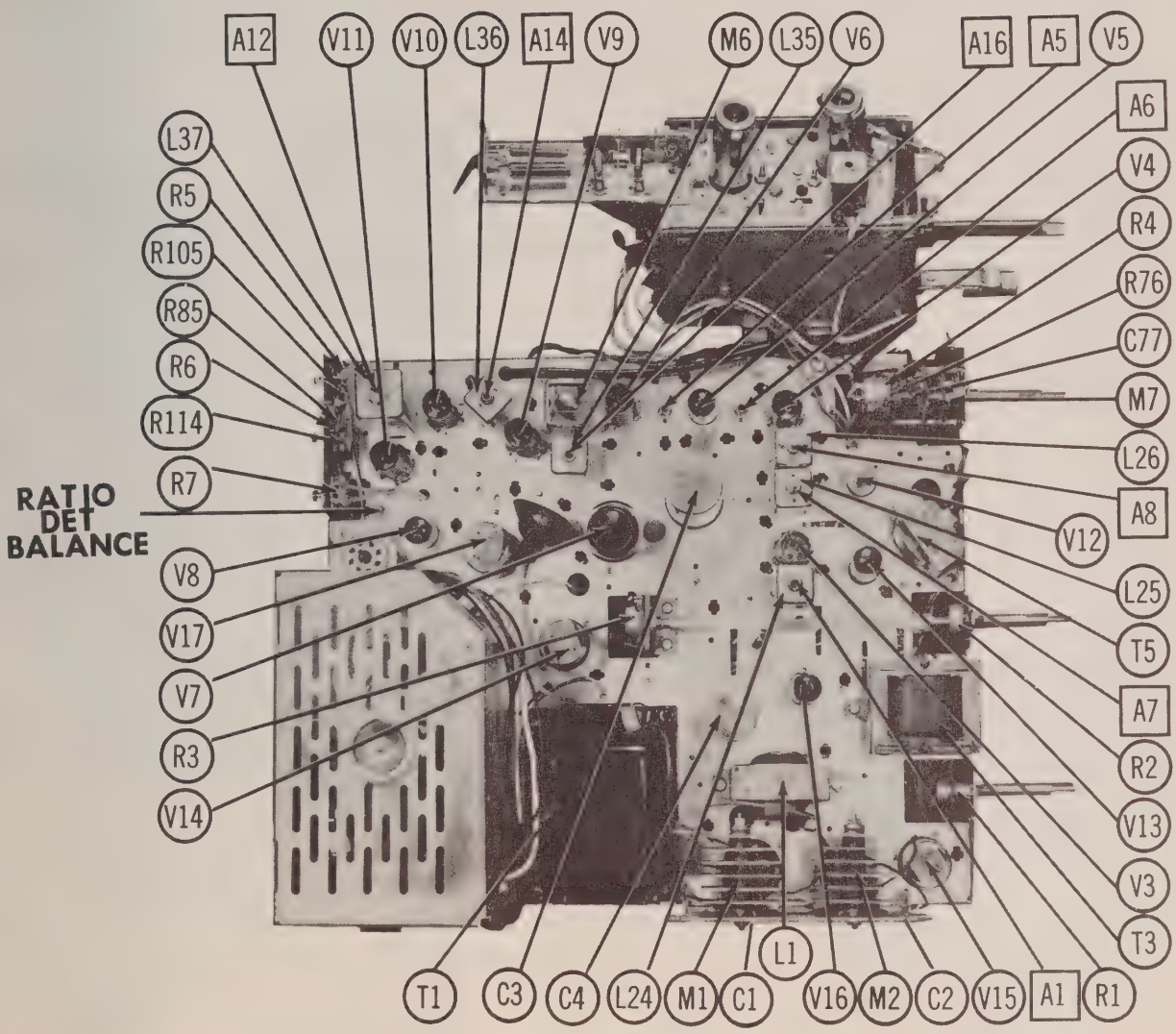
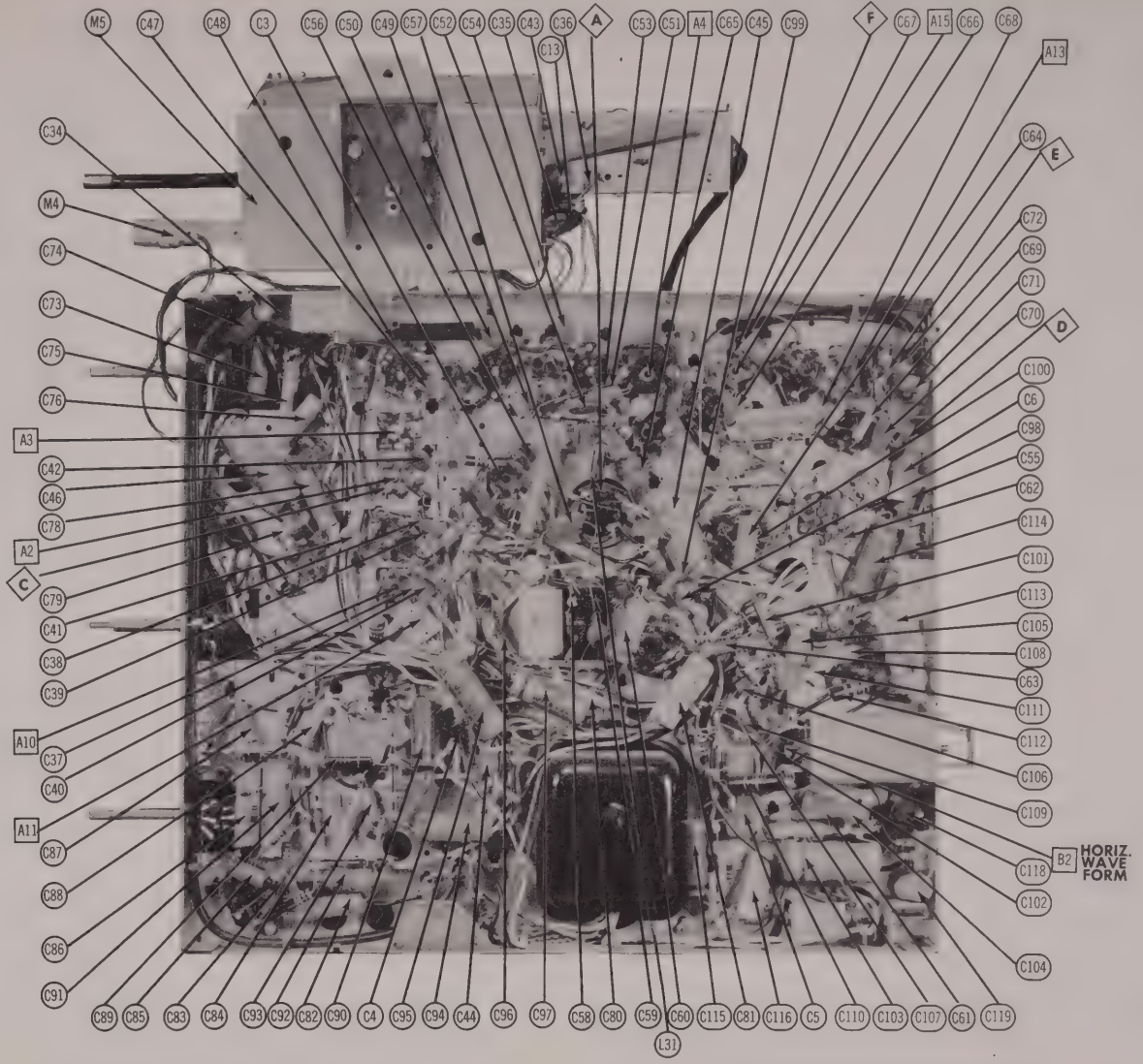

RCA VICTOR
MODELS 17T250DE, 17T261DE (Ch. KCS74)
RF AMP 6BQ7
1ST SOUND IF 6AU6
2ND SOUND IF 6AU6
RATIO DET 6AL5
AF AMP AGC CLAMPER 6AV6
AUDIO OUTPUT 6AQ5
1ST VIDEO IF 6AU6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
4TH VIDEO IF 6CB6
VIDEO OUTPUT 6AG7
CONV 6X8
AGC KEYING 6CB6
HORIZ SYNC SEP 6SN7GT
VERT SYNC SEP 6SN7GT
VERT SYNC AMP 6SN7GT
VERT MULT 6SN7GT
VERT MULT VERT OUTPUT 6AQ5
HORIZ SYNC AMP 6SN7GT
HORIZ AFC 6SN7GT
HORIZ OSC
HORIZ OUTPUT 6BQ6GT
HV RECT 1B3GT
DAMPER 6W4GT
PICTURE TUBE 17QP4
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1953
RCA VICTOR MODELS 17T250DE, 17T261DE (Ch. KCS74)



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal oscillator tube (V18).
Connect a 1000 ohm potentiometer across a 7.5 volt battery capable of withstanding appreciable current drain. This will serve as a source of variable bias during alignment.

VIDEO IF ALIGNMENT

Connect the potentiometer arm of the bias box to the ungrounded side of C45. Connect the positive lead to chassis. Adjust for -1 volt at potentiometer arm.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Across R27 (mounted on L24).	Not Used.	39.25MC (Unmod)	Any non-interfering channel.	USE VTVM. DC probe to point ◇A◇. Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	47.25MC	"	"	A3	"
4.	"	"	"	43.7MC	"	"	A4	Adjust for maximum deflection. Attenuate generator to maintain approximately 1 Volt DC at VTVM.
5.	"	"	"	45.5MC	"	"	A5	"
6.	"	"	"	41.8MC	"	"	A6	"
7.	.001MFD Ceramic Capacitor	High side to pin 1 (grid) of 6AU6 (V3). Low side to chassis.	44MC (10 MC Swp)	42MC 45MC 45.75MC 46.5MC	"	Vert. Amp. of scope to point ◇A◇. Low side to chassis.	A7, A8	Shunt R42, R46 and terminals "A" and "F" of M6 with 330Ω carbon resistors. Adjust for maximum gain and curve shape similar to Fig. 1. Attenuate generator to maintain .5 V peak to peak at scope input.
8.	"	High side to point ◇B◇ Low side to chassis. Use short, shielded leads.	44MC (10MC Swp)	41.25MC 41.9MC 44.5MC 45.75MC	4	Vert. amp thru detector probe (Fig 2) to point ◇C◇ Low side to chassis.	A9, A10, A11	Connect 180Ω carbon resistor from point ◇C◇ to junction of R34 and C42. Preset All for minimum capacity. Adjust A9 and A10 for response similar to Fig. 3. with maximum gain at 43.5MC and 45.75MC at 70%. Adjust All until 41.25MC is at 85% response. Disconnect the 180Ω and the three 330Ω resistors.
9.	"	"	44MC (10MC Swp)	42.25MC 42.5MC 45MC 45.75MC 46.5MC	Any non-interfering channel.	Vert. amp to point ◇A◇ Low side to chassis		Adjust bias box for -6 Volts at potentiometer arm. Check for response similar to fig. 4. If necessary retouch A4 and A5 for desired response. Do not retouch A6 unless absolutely necessary as improper adjustment may cause interference in the picture, poor adjacent channel picture rejection or noisy sound.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.001MFD	High side to pin 1 (grid) of 6AU6 (V10). Low side to chassis.	Not used	4.5MC (400∿Mod)	Any non-interfering channel	Vert. Amp. to point ◇E◇. Low side to chassis.	A12	Connect DC probe of VTVM to point ◇D◇. Common to chassis. Adjust A12 for maximum deflection on VTVM. Attenuate generator to maintain approximately 10 volts DC at VTVM.
11.	"	"	"	"	"	"	A13 R8	Move DC probe of VTVM to point ◇E◇. Adjust A13 for zero reading on VTVM. A positive or negative reading will be obtained on either side of correct setting. Adjust R8 for MINIMUM 400 ∿ response on scope. Repeat adjustments of A13 and R8 until zero DC on VTVM and minimum 400∿ response on scope are obtained at same time.
12.	"	High side to pin 1 (grid) of 6AU6 (V9). Low side to chassis.	4.5MC (450KC Swp)	4.5MC (Unmod)	"	Vert. Amp. thru 10KΩ to point ◇F◇. Low side to chassis.	A14, A15	Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection. Adjust for response curve of maximum amplitude and symmetry centered about 4.5MC as in Fig. 5. Attenuate generator output to prevent distortion of response curve.
13.	"	High side to terminal "C" of L35. Low side to chassis.	Not used	"	"	Use VTVM. DC probe thru detector (Fig. 2) to pin 8 (plate) of 6AG7 (V7). Common to chassis.	A16	Adjust for MIMIMUM deflection. If necessary short pin 1 of 6CB6 to chassis to eliminate noise interference from preceding tubes.

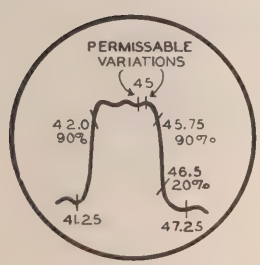


FIG. 1

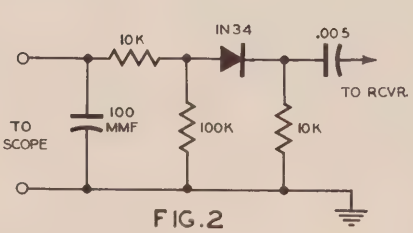


FIG. 2

FIG. 3

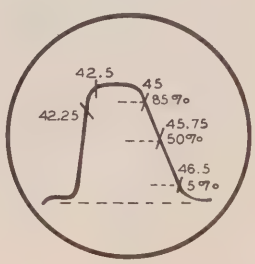


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

ANTENNA MATCHING UNIT ALIGNMENT

Disconnect the lead from the FM trap (L8) to the channel selector switch.
With a short jumper, connect the output of the matching unit through a .001MFD capacitor to pin 1 of 6CB6 (V4).
Replace the cover on the matching unit.
Remove V3 from its socket.
Connect the potentiometer of the bias box to the ungrounded side of C45. Connect the positive lead to chassis and set bias applied at C45 to -6 volts.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Fig. 6	Thru proper matching pad (Fig. 6) to antenna terminals.	Not used	45.75MC (400∿ Mod)	Any	Vert. Amp. to point Ⓐ. Low side to chassis.	A17	Adjust for MINIMUM 400∿ indication.
15.	"	"	"	41.25MC	"	"	A18	Adjust for MINIMUM 400∿ indication. Remove the jumper from the output of the matching unit.
16.	"	"	50MC (10MC Swp)	50MC 52MC 53MC	"	Vert. Amp. thru detector (Fig. 2) to free end of L8. Low side to chassis.	A19, A20	Connect 300Ω carbon resistor from free end of L8 to chassis. Adjust A19 to place the shoulder of response curve at 52MC as in Fig. 7. Adjust A20 for maximum amplitude of curve consistent with shape of desired response. Remove the 300Ω resistor and restore all connections to normal. Replace V3 in its socket.

RF ALIGNMENT

The alignment procedure outlined below requires the use of a heterodyne frequency meter.
If RF unit is only slightly out of alignment no presetting of adjustments will be required.
For units requiring complete alignment preset all adjustments to approximate center of range with the following exceptions:
Set A31 so that the screwhead is approximately three-eighths of an inch above chassis.
Set A29 one quarter turn from tight.
Do not change any of the adjustments in the antenna matching unit.
Disconnect the link from terminals "A" and "B" of L24 and terminate the link with a 39Ω carbon resistor. Short the RF AGC line to chassis (the line from pins 5 & 6 of V12).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	.0015MFD	High side to short length of wire wrapped around pin 7 (grid) of 6BQ7 (V1). Low side to chassis.	Not used	43.5MC (400∿ Mod)	2	Vert. Amp. to point Ⓖ. Low side to chassis.	A21	Adjust for MINIMUM 400∿ response. Remove wire from pin 7 of V1.
18.	Direct	Connect the RF input of the heterodyne frequency meter to one end of an insulated piece of wire. Insert other end into RF unit thru hole for adjustment of A29.		Set frequency meter to 227MC	8	Not used	A22	Set fine tuning control 30 degrees clockwise from center of its range for this and all succeeding oscillator adjustments. Adjust A22 for audio beat with frequency meter. If range of A22 permits proper adjustment as outlined above proceed to step 25, if not, continue with step 19.
19.	"	"		257MC	13	"	A23	Adjust for audio beat with frequency meter.
20.	"	"		251MC	12	"	A24	"
21.	"	"		245MC	11	"	A25	"
22.	"	"		239MC	10	"	A26	"
23.	"	"		233MC	9	"	A27	"
24.	"	"		227MC	8	"	A22	Adjust for audio beat with frequency meter. Repeat Steps 19 and 24.
25.	Fig. 6	Thru proper matching pad to antenna terminals	183MC (10MC Swp)	181.25MC 185.75MC	8	Vert. Amp. to point Ⓖ. Low side to chassis.	A28, A29 A30, A31	Set A9 for maximum inductance (counter-clockwise). Adjust A28 thru A31 for response similar to Fig. 8.
26.	Direct	Connect frequency meter as in step 18.	Not used	Set frequency meter to 129MC	6	Not used	A32	Adjust for audio beat with frequency meter.
27.	Fig. 6	Thru proper matching pad to antenna terminals.	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. Amp. to point Ⓖ. Low side to chassis.	A33, A34 A35	Adjust for response similar to Fig. 8.
28.	Connect VTVM between point Ⓖ and chassis. Turn off all signal generators and adjust A36 for -3.5 volts or maximum voltage if less than 3.5 volts.							
29.	Repeat step 27, if necessary.							
30.	Repeat steps 24 and 25.							
31.	If A28 was readjusted in step 30, turn off all signal generators, tune receiver to channel 6 and check for -3.5 volts at point Ⓖ. Readjust A36 if necessary.							
32.	Direct	Connect frequency meter as in Step 18.	Not used	Set frequency meter to 257MC	13	Not used	A23	Adjust for audio beat on frequency meter. Slightly overshoot the adjustment, then adjust A22 for audio beat.
33.	Fig. 6	Thru proper matching pad to antenna terminals	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point Ⓖ. Low side to chassis.		Check for response as in Fig. 8 with markers above 80%. If necessary readjust A28 thru A31 for desired response on Channel 8.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
34.	Direct	Connect frequency meter as in Step 18.	Not used	Set frequency meter to 227MC	8	Not used		If necessary adjust A22 for audio beat, overshooting adjustment and adjusting A23.
35.	"	"	"	129MC	6	"	A32	Adjust for audio beat.
36.	Fig. 6	Through proper matching pad to antenna terminals.	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. Amp. to point G. Low side to chassis.		Check for response as in Fig. 8. If necessary retouch A33, A34 and A35 for desired response.
37.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A9	Ajdust clockwise to a point where no change in response is noted as A9 is turned.
38.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"		Check for response similar to Fig. 8. If necessary tilt in same direction occurs on channels 2, 3 and 4. Adjust A31 to overshoot correction of this tilt then adjust A35 on channel 6 for maximum amplitude of response markers.
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
39.	Direct	Connect frequency meter as in step 18.	Not used.	Set freq. meter to:		Not used.		
				257MC	13		A22	Adjust for audio beat on frequency meter. Remove the 39Ω resistor from the link and reconnect the link to L24. Remove the short from the RF AGC line. Check setting of A9 as in step 9 of video IF alignment retouching A9 adjustment if necessary.
				251MC	12		A24	
				245MC	11		A25	
				239MC	10		A26	
				233MC	9		A27	
				227MC	8		A37	
				221MC	7		A38	
				129MC	6		A32	
				123MC	5		A39	
				113MC	4		A40	
				107MC	3		A41	
				101MC	2		A42	

FM TRAP ADJUSTMENT

Tune to TV station on which FM interference is noted and adjust A43 to minimize the interference in the picture. Check to see that reception on Channels 5 and 6 has not been impaired.

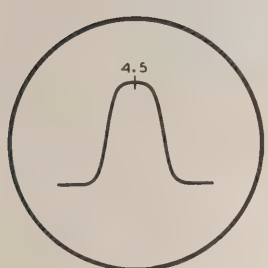


FIG. 5

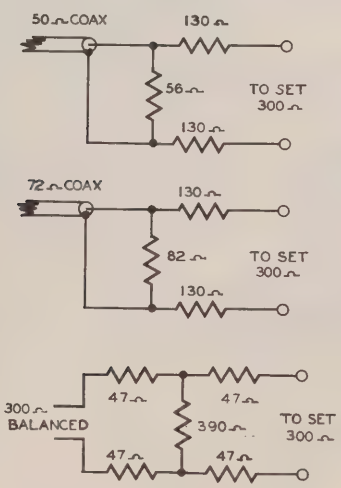


FIG.6

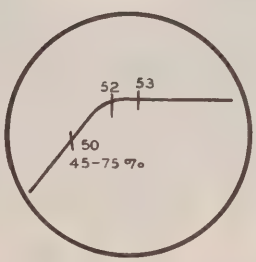


FIG.7

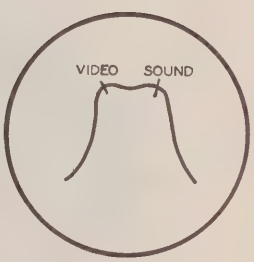
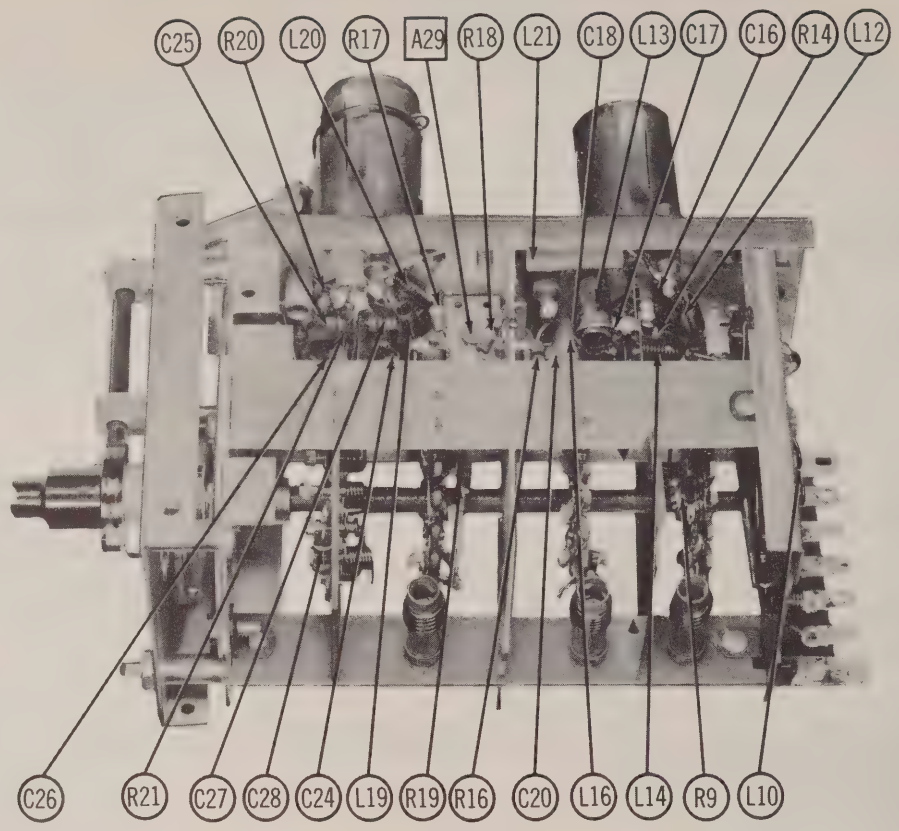


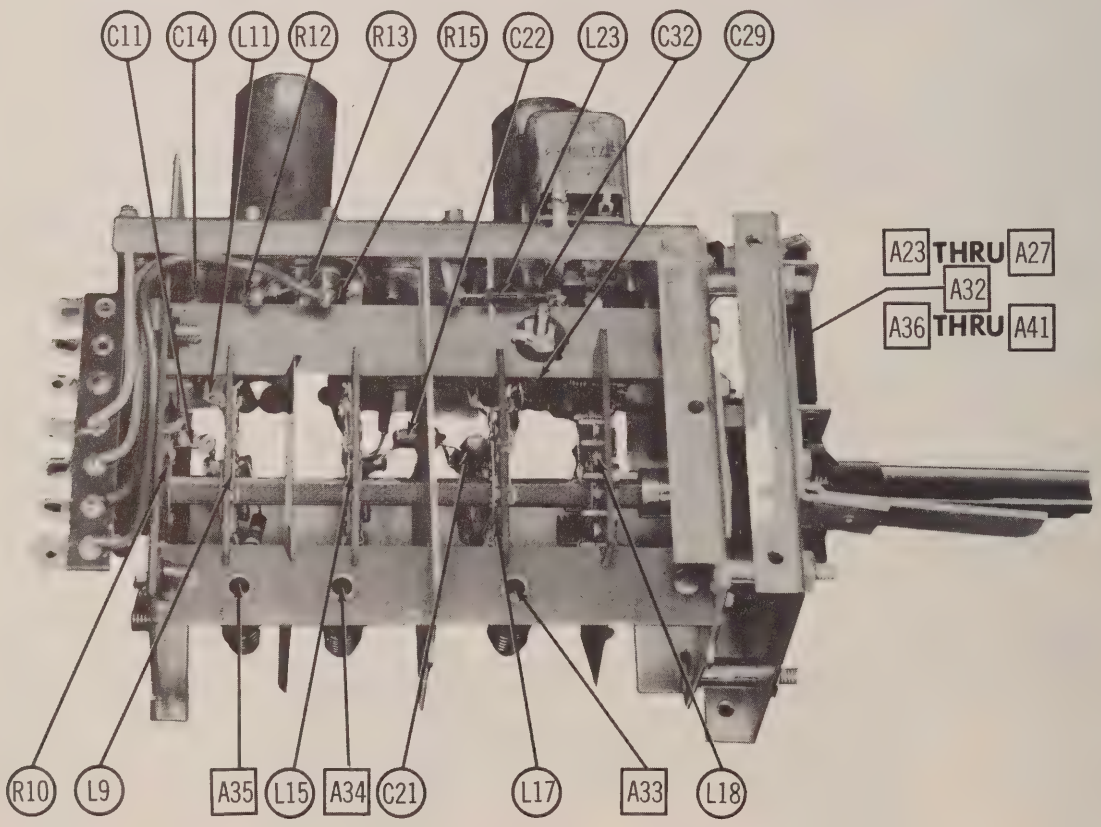
FIG.8

DISASSEMBLY INSTRUCTIONS

1. Chassis Removal
   - A. Disconnect built-in antenna and transmission line from rear cover.
   - B. Remove 3 wood and 2 metal screws. Remove rear cover.
   - C. Disconnect speaker, yoke plug, CRT socket , HV lead and GRD strap from HV cage.
   - D. Remove 5 chassis bolts. Remove chassis.
   - E. Remove 4 speaker nuts. Remove speaker.
2. Picture Tube Removal
   - A. Removal of chassis is necessary.
3. Picture Tube Cleaning
   - A. Safety glass can be removed by removing 5 spring clip from back of front panel (2 at each side and 1 at top). The bottom clip does not have to be removed.
4. Ratio detector transformer secondary accessable through hole in bottom of cabinet.

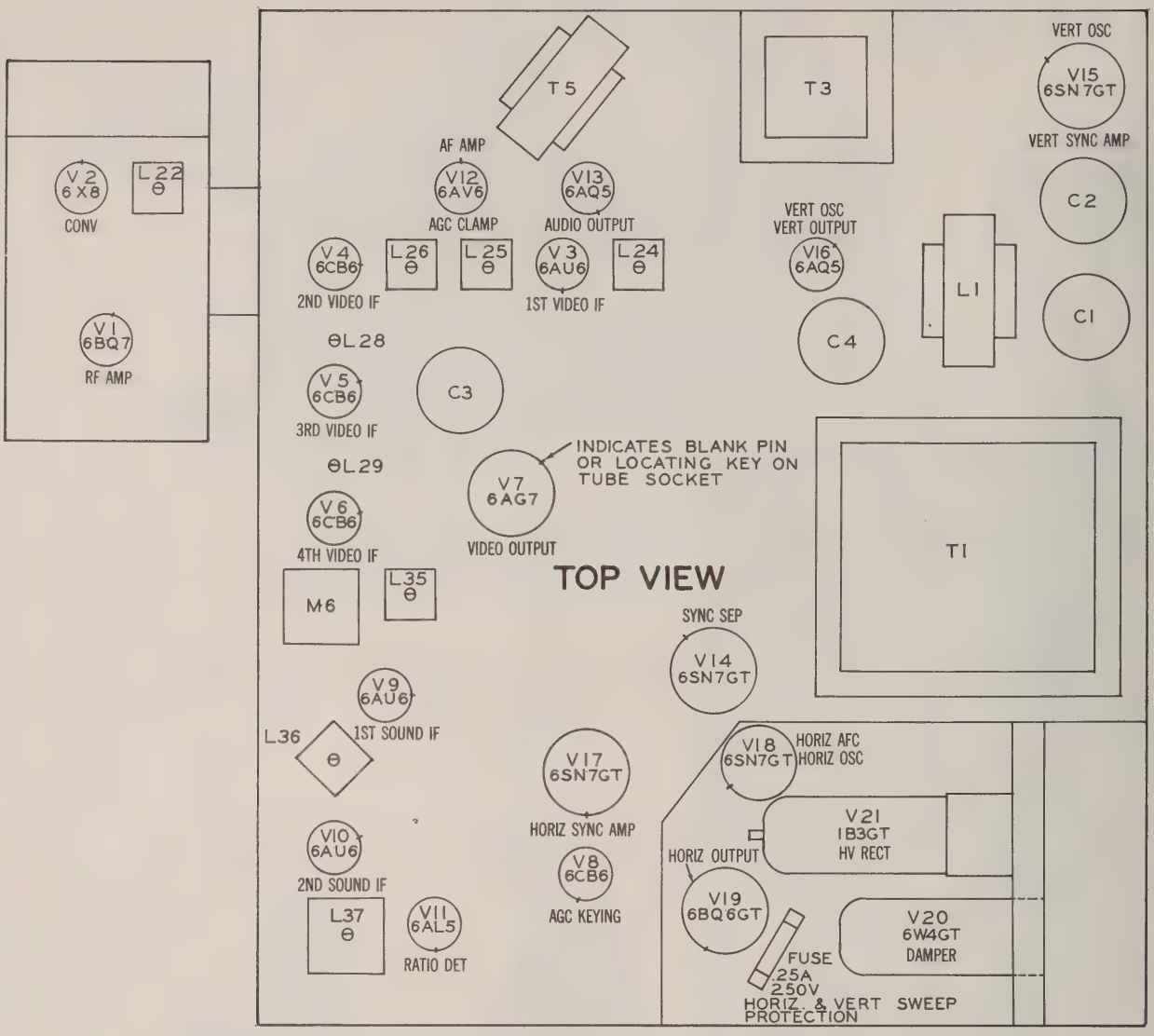


RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound- Selenium Rectifiers (M1 & M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V22
Has pic, no sound-V9, V10, V11, V12, V13
Overloaded picture-V8, V12

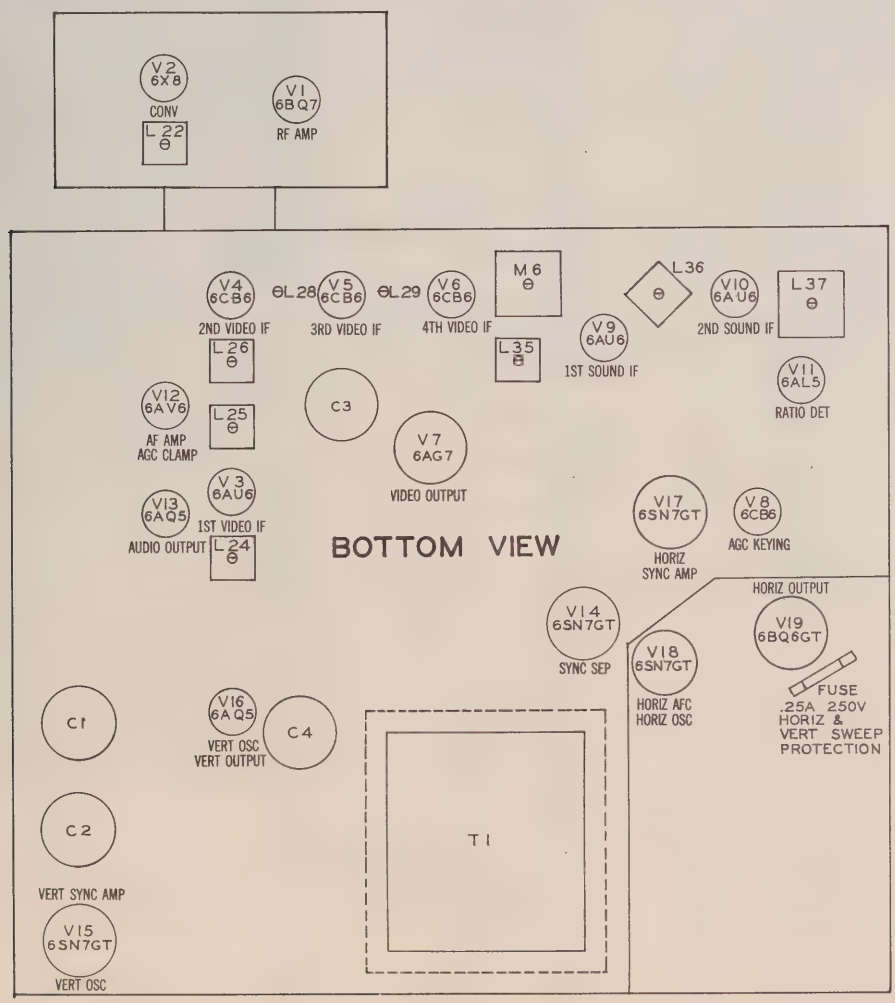
SYNC FAILURE
No vert. sync.-V14, V15
No horiz. sync.-V14, V17, V18
No vert. or horiz. sync.- V14

SWEEP FAILURE
No raster, has sound-V18, V19, V20, V21, V22 Fuse (M3)
No vertical deflection-V15, V16
Poor vert. linearity or foldover-V15, V16
Poor horiz. linearity or foldover-V18, V19, V20
Narrow picture-V18, V19, V20, V21, M1, M2
Vert. off freq.-V14, V15
Horiz. off freq.- V14, V17, V18

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	†1.6KΩ	8.2Meg	8.7Meg	0Ω	.1Ω	8.7Meg.	†1.8Meg	130Ω	0Ω
V 2	6X8	†2.1KΩ	100KΩ	†12KΩ	0Ω	.1Ω	0Ω	100KΩ	†2.1KΩ	†2.1KΩ
V 3	6AU6	48KΩ	0Ω	0Ω	.1Ω	†6.6KΩ	†47KΩ	100Ω		
V 4	6CB6	48KΩ	56Ω	0Ω	.1Ω	†6.6KΩ	†47KΩ	0Ω		
V 5	6CB6	.2Ω	68Ω	.1Ω	0Ω	†3KΩ	†12KΩ	0Ω		
V 6	6CB6	.2Ω	180Ω	.1Ω	0Ω	†6.8KΩ	†3KΩ	0Ω		
V 7	6AG7	0Ω	0Ω	0Ω	3.9KΩ	47Ω	†11KΩ	.1Ω	†9KΩ	
V 8	6CB6	620KΩ	15KΩ	.1Ω	0Ω	280KΩ	†12KΩ	15KΩ		
V 9	6AU6	470KΩ	0Ω	0Ω	.1Ω	†5.3KΩ	†5.3KΩ	82Ω		
V 10	6AU6	47KΩ	0Ω	0Ω	.1Ω	†1KΩ	†57KΩ	0Ω		
V 11	6AL5	7.8KΩ	8KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 12	6AV6	10Meg	0Ω	0Ω	.1Ω	400KΩ	400KΩ	†335KΩ		
V 13	6AQ5	470KΩ	680Ω	0Ω	.1Ω	†810Ω	†510Ω	470KΩ		
V 14	6SN7GT	2IKΩ	†1.3KΩ	150KΩ	2.2Meg	†822KΩ	0Ω	0Ω	.1Ω	
V 15	6SN7GT	520KΩ	1.8Meg	0Ω	18KΩ	22KΩ	0Ω	0Ω	.1Ω	
V 16	6AQ5	2.2Meg	1.8KΩ	0Ω	.1Ω	†600Ω	†39Ω	2.2Meg		
V 17	6SN7GT	3.9Meg	†2KΩ	1KΩ	1Meg	†14KΩ	0Ω	0Ω	.1Ω	
V 18	6SN7GT	1.5Meg	†38KΩ	410KΩ	430KΩ	†47KΩ	0Ω	0Ω	.1Ω	
V 19	6BQ6GT	INF	0Ω	INF	†10KΩ	470KΩ	INF	.1Ω	180Ω	TOP CAP #14Ω
V 20	6W4GT	INF	INF	230KΩ	INF	†60Ω	INF	#18.2Ω	#18.2Ω	
V 21	1B3GT	PINS 1 TO 8 HAVE INF. RESISTANCE								TOP CAP #164Ω
V 22	17QP4	†2KΩ	210KΩ	PIN 10 #68KΩ	PIN 11 †160KΩ	PIN 12 †2KΩ				

† MEASURED FROM OUTPUT OF M1.
# MEASURED FROM PIN 3 OF V20.



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, CO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6X8	6X8	9AK	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	4th Video IF Amp	6CB6	6CB6	7CM	
V7A	Video Output	6AG7	6AG7	8V	
B	Video Output	6CL6	6CL6		
V8	AGC Keying	6CB6	6CB6	7CM	
V9	1st Sound IF Amp.	6AU6	6AU6	7BK	
V10	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector	6AL5	6AL5	6BT	
V12	AF Amplifier-AGC Clamper	6AV6	6AV6	7BT	
V13	Audio Output	6AQ5	6AQ5	7BZ	
V14	Sync Seperator	6SN7GT	6SN7GT	8BD	
V15	Vert. Sync Amp. - Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V16	Vert. Oscillator-Vert. Output	6AQ5	6AQ5	7BZ	
V17	Horiz. Sync. Amp.	6SN7GT	6SN7GT	8BD	
V18	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	RCA Victor PART No.	SYLVANIA PART No.			
V22	17QP4	17QP4 17XP4		12D 12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	150	200	75220			XA007			TVL-1540	
C2	150	200	75220			XA007			TVL-1540	
C3A	▲100	350	76451	AFH4-67					TVL-4660	
B	■10	350		PRS50/20						
C	▲10	350								
D	20	50								
C4A	■10	350	75218	AFH3-112		CO74		FP387.1	TVL-2750	
B	▲5	350							TVA-1311	
C	150	50								
C5	5	450	28417	PRS450/4		BR445		TC70	TVA-1702	
C6	5	50	74521	PRS150/4		BR550		TC30	TVA-1303	
C7	18		54207		TCZ-18		NP0K-180			
C8	5		93056	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C9	27		70935		TCZ-27		NP0K-270			
C10	33		76739		TCZ-33		NP0K-330	ZT-5433	5TCC-Q33	
C11	22		76557	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C12	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C13	4700		73743	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C14	1-4		76532		829-4			CT551		
C15	1500		75166							
C16	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C17	8		70597							
C18	1500		73748	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C19	1500		75166							
C20	270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C21	270		75199	SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C22	220		77460	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C23	1500		75166							
C24	5		93056	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C25	22		76557	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C26	10		55326	SI10N080			N080-331-100			
C27	22		76558	SI22NP0	TCZ-22		NP0K-220		5TCC-Q22	
C28	.68		71088		TCZ-.68		NP0K-R68			
C29	.8-3		77151		829-3			CT565A		
C30	1500		75166							
C31	1500		75166							
C32	1500		75610	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C33	1500		75166							
C34	.047	400	73553	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C35A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C36A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C37	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C38	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C39	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C40	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C41	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C42	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C43	.047	600	73592	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C44	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C45	.47	200	73787	P288-47		PJ2P5		PT405	2TM-P47	
C46	.47	200	73787	P288-47		PJ2P5		PT405	2TM-P47	
C47A	4700		76470	BPD-2X0047	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700					TM5D5	811-005	DC-525		
C48	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
			REPLACEMENT DATA							
C48A	4700		78470	BPD-EX0047	DD-5-502	TM5D5	811-005	DC-525	5HK-3D47	
B	4700					TM5D5	811-005	DC-525		
C50	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C51	1500		75166							
C52	10000		73960	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-B1	
C53	4700		73473	BPD-0047	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C54A	4700		78470	BPD-EX0047	DD-5-502	TM5D5	811-005	DC-525	5HK-3D47	
B	4700					TM5D5	811-005	DC-525		
C55	.0068	400	73789	P488-0068	D6-683	TP2ED68	GP1-333-683	PT2G68	5TM-D68	
C56	100		75437	SU100	D6-101	TM5T1	GP1-101	DC-531	5GA-T1	
C57	150	500	53416							
C58	330		73964	SU39	D6-390	5W5Q4	GP1K-390	UC-5439	5GA-439	
C59	15		39044	SU15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C60	.1	200	73784	P288-1	DF-104	P2ED1		PT401	3TM-P1	
C61	330		76873							
C62	.0033	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C63	.0015	600	73602	P688-0015	D6-152	PTE6D15	GP2L-152	PT6215	6TM-D15	
C64	.0033	600	73795	P688-0033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D33	
C65	10000		73960	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-B1	
C66A	10000		75877	BPD-01	DD-3-103	TM5D81	831-01	DC-511	5HK-3B1	
B	10000			BPD-01			831-01	DC-511		
C67	56		71934	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C68A	10000		75877	BPD-01	DD-3-103	TM5D81	831-01	DC-511	5HK-3B1	
B	10000			BPD-01			831-01	DC-511		
C69	470	500	54003	1469-0005		5R5T5			MS-35	
C70	470	500	54003	1469-0005		5R5T5			MS-35	
C71	.0022	600	73795	P688-0033	D6-333	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C72	100		39296	SU100	D6-101	TM5T1	GP1K-101	DC-531	5GA-T1	
C73	.0047	600	73920	P688-0047	D6-473	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C74	.039	300	73790	P388-04		PTE4S4		PT4I4	3TM-S4	
C75	.01	600	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C76	.0027	600	73599	P688-003	D6-272	PTE6D3	GP2-333-302	PT623	6TM-D3	
C77	270		74617	SI270	D6-271	5W5T3	GP1K-271	UC-5327	5GA-T27	
C78	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C79	.0027	1000	73818	P1088-003		PTE10D3		PT1623	MB-D3	
C80	330	500	39640	1469-00035						
C81	.1	400	73561	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C82	.047	200	73558	P288-047	DF-503	PTE4S47		PT4I47	3TM-S47	
C83A	.003			P688-002		PTE6D2		PT622		
B	.005		●77196	P688-005	●PC-100	PTE6D5	●1405-01	PT625	●101CI	
C	.005			P688-005		PTE6D5		PT625		
C84	.001	600	73549	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C85	390	1000	73094							
C86	.1	200	73784	P288-1	DF-104	PTE4P1		PT401	4TM-P1	
C87	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C88	.0033	600	73795	P688-0033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D33	
C89	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C90	.033	600	73796	P688-032	DF-303	PTE6S32		PT6132	6TM-S32	
C91	.001	600	73557	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C92	.033	600	73596	P688-033		PTE6S33		PT6133	6TM-S33	
C93	.0022	600	73595	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C94	.068	1000	73782	P288-068		PTE4S68		PT4I68	3TM-S68	
C95	.047	1000	73597	P1088-05		PTE10S5		PT1615	MB-S5	
C96	.0047	600	73920	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C97	.1	400	73561	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C98	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	PT4I1	4TM-S1	
C99	.001	600	73549	P688-001	D6-103	PTE6D1	GP2L-102	PT621	6TM-D1	
C100	100		39296	SU100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C101	82	1000	76474							
C102	.047	600	73553	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C103	.47	200	73787	P288-47		PT2S5		PT405	3TM-S47	
C104	.022	400	73562	P488-022	DF-303	PTE4S22		PT4I22	4TM-S22	
C105	.1	400	73561	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C106	68	1000	76475					MCL468	10GAB-Q68	
C107	12		33380		TCN-12					
C108	.001	600	73549	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C109	330	1000	76476							
C110	.01	600	73594							
C111	.0012	600	76895							
C112	.0068	600	76479							
C113	.1	600	73557	P688-1	DF-104	PTE4P1		PT601	6TM-P1	
C114	.27	200	73786							
C115	.027	1000	73811							
C116	.022	1000	73810	P1088-022				PT1622		
C117	270	1000	73091					MCK-327	10GAB-T27	
C118	.047	400	75071	4892GXY-05		PJ4S47		PT4I47	4TM-S47	
C119	.047	400	75071	4892GXY-05		PJ4S47		PT4I47	4TM-S47	

● Items C83A, C83B, C83C, R101A, R101B, R101C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
			REPLACEMENT DATA					
R1A	820KΩ	½	77301	QJ-378**	RTV-357	SBB-731		Vert. Hold-Panel
B	75KΩ	½						Horiz. Hold-Rear
R2	200KΩ	½	76444	QJ-325 *				Brightness
R3	15KΩ	½	76445	QI3-11SXX				Contrast-Tapped ③ 5KΩ &10KΩ
R4A	1Meg	½	77000	QI3-137X	AK-111	ABT-73	UT-436	Volume - Tapped ② 240KΩ
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
C	Switch		Not Req.	76-1	SWB	KB-1	US-38	Attach to R4A
R5A	2.5Meg	½	76448	QII-239	AG-84-S	AB-83	BU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1500Ω	½	76449	QII-110	AG-11-S	AB-8	U-8	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	25KΩ	½	77200	QII-120	AG-40-S	AB-26	BU-29	AGC
B	Shaft		Not Req.	Not Req.	FKB-1/4	AK-1	Not Req.	Attach to R7A
R8	2500Ω	½	77199					Ratio Det. Balance

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS Bil-129 & Pi-200 (Panel)
(Rear) None & R5-215.

** CONCENTRIKIT EQUIVALENT -KIT K-2, BASE ELEMENTS & SHAFTS Bil-137 & Pi-200 (Panel)
Bil-125 & Ri-216 (Rear)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	IRC PART No.	NOTES
			REPLACEMENT DATA		
R9	33000Ω	½	503233	BTS 3300	
R10	36000Ω-5%	½		BTS-3600-5%	Note 1
R11	150Ω	½	503115	BTS-150	
R12	47Ω	½	503047		
R13	82Ω	½	503082	BTS-82	
R14	470KΩ	½	503447	BTS-470K	
R15	1000Ω	½	503210	BTS-1000	
R16	1000Ω	½	503210	BTS-1000	
R17	100KΩ	½	503410	BTS-100K	
R18	100KΩ	½	503410	BTS-100K	
R19	33000Ω	½	503233	BTS-3300	
R20	100KΩ	½	503410	BTS-100K	
R21	10KΩ	½	503310		
R22	1.5Meg-5%	½	11769	BTS-1.5Meg-5%	
R23	8.2Meg	½	503582	BTS-8.2Meg	
R24	2700Ω-5%	½	3046	BTS-200K-5%	
R25	270KΩ-5%	½	502427	BTS-270K-5%	
R26	100Ω	½	503110	BTS-100	
R27	1000Ω	½	503210	BTS-1000	
R28	1000Ω	½		BTA-1000	
R29	5600Ω	½	503256		
R30	100Ω-5%	½	502110	BTS-100-5%	
R31	47KΩ	½	513247		
R32	470Ω	½	503147	BTS-470	
R33	100Ω	½	503110	BTS-100	
R34	1000Ω	½	503210	BTS-1000	
R35	5600Ω	5	76390	1 3/4A-5000	
R36	47KΩ-5%	½	30787	BTS-47K-5%	
R37	33KΩ	½	503233	BTS-33K	
R38	1000Ω	½	503210	BTS-1000	
R39	560-5%	½	602056		
R40	47KΩ	½	513247		
R41	1000Ω	½	503210	BTS-1000	
R42	68000-5%	½	14659		
R43	68Ω-5%	½	34763		
R44	10KΩ	½	513310	BTA-10K	
R45	1000Ω	½	503210	BTS-1000	
R46	56KΩ-5%	½	502356		
R47	180Ω	½	503118	BTS-180	
R48	1000Ω	½	503210	BTS-1000	
R49	6800Ω	½	513268	BTS-6800	
R50	390Ω-5%	½	502339	BTS-3900-5%	
R51	47Ω	½	503047		
R52	2200	½	503122		
R53	4700Ω	½	513247	BTA-4700	
R54	2200Ω	2	533222	BTS-2200	
R55	8750Ω	10	76643	1 3/4A-7000	
R56	680Ω	½	503168	BTS-680	
R57	2200Ω	½	503222	BTS-2200	
R58	150KΩ	½	503418	BTS-150K	
R59	150KΩ	½	503415	BTS-150K	
R60	220KΩ	½	503422	BTS-220K	
R61	100KΩ	½	503410	BTS- 100K	
R62	3300Ω	½	503233	BTS-3300	
R63	15KΩ-5%	½		BTS-15K-5%	
R64	470KΩ	½	503447		
R65	820-5%	½	503082	BTS-82- 5%	
R66	3300Ω	½	513333	BTA-3300	
R67	47KΩ	½	503347		
R68	56KΩ	2	533256	BTA-1000	
R69	1000Ω	1			
R70	18KΩ	½	503318		
R71	47Ω	½	503047		
R72	1000Ω-5%	½	502210	BTS-1000-5%	
R73	39KΩ	½	503339	BTS-39K	
R74	6800Ω-5%	½	14659	BTS 6800-5%	
R75	6800Ω-5%	½	14659	BTS-6800-5%	
R76	10KΩ	½	503310	BTS-10K	
R77	10 Meg	½	503610	BTS-10 Meg	
R78	330KΩ	½	503433	BTS-330K	
R79	470KΩ	½	503447	BTS-470K	
R80	680Ω	1	77193	BTA-680	
R81	470Ω	1	513147	BTA-470	
R82	470KΩ	½	503447	BTS-470K	
R83	47KΩ	½	503347	BTS-47K	
R84	33KΩ	½	503312	BTS-12K	
R85	12KΩ	½	503312	BTS-12K	
R86	5600Ω-5%	½		BTS-5600-5%	
R87	1000Ω	½	503210	BTS-1000	
R88	12KΩ-5%	½		BTA-12K-5%	
R89	1 Meg	½	503510	BTS-1 Meg	
R90	39KΩ	½	513339	BTA-39K	
R91	1300Ω-5%	½		BTS-1300-5%	
R92	33KΩ	½	503333	BTS-33K	
R93	150KΩ	½	503415	BTS-150K	
R94	2.2Meg	½	503522	BTS-2.2Meg	
R95	820KΩ	½	503482	BTS-820K	
R96	18KΩ	½	503318	BTS-18K	
R97	370KΩ	½	503427	BTS-370K	
R98	18KΩ	½	503318	BTS-18K	
R99	47KΩ-5%	½		BTA-47K-5%	
R100	33KΩ	½	503333	BTS-33K	
R101A	22KΩ			BTS-22K	
B	8200Ω		● 77196	BTS-8200	
C	8200Ω			BTS-8200	
R102	68KΩ	½	503368	BTS-68K	
R103	390KΩ	½	503439	BTS-390K	
R104	820KΩ	½	503482	BTS-820K	
R105	560KΩ	½	503456	BTS-560K	
R106	68KΩ	½	503368	BTS-68K	
R107	100KΩ	½	503410	BTS-100K	
R108	43KΩ-5%	½	512343	BTA-43K-5%	
R109	2.2Meg	½	503522	BTS-2.2Meg	
R110	10KΩ	½	503310	BTS-10K	
R111	120KΩ-5%	½	30180	BTS-120K-5%	
R112	8200Ω	½	503282	BTS-8200	
R113	2.2Meg	½	503522	BTS-2.2Meg	
R114	470Ω	½	513147	BTA-470	
R115	330Ω	½	503125		
R116	22KΩ	½	513322	BTA-22K	
R117	68KΩ	½	513368	BTA-68K	
R118	330KΩ	½	503433	BTS-330K	
R119	820KΩ	½	503482	BTS-820K	
R120	82KΩ	½	513382	BTA-82K	
R121	330KΩ-5%	½	512433	BTA-330K-5%	
R122	3900Ω	½	503239	BTS-3900	
R123	150KΩ	½	503415	BTS-150K	
R124	100KΩ-5%	½	512410	BTA-100K-5%	
R125	1.8Meg-5%	½	39063	BTA-1.8Meg-5%	
R126	12K-5%	½	30436	BTS-12K-5%	
R127	47KΩ-5%	½		BTA-47K-5%	
R128	820KΩ	½	503482	BTS-820K	
R129	470KΩ	½	503447	BTS-470K	
R130	47Ω	½	503047		
R131	180Ω	2	76839	BW-2-180	
R132	10KΩ	2	533310	BTB-10K	
R133	68KΩ	½	503368	BTS-68K	
R134	5.1Ω	½	76796		
R135	2000Ω	10	34473	1 3/4A-2000	
R136	3.9Meg	½	503539	BTS-3.9Meg	

● Items R101A, R101B, R101C, C83A, C83B, C83C are combined in one unit.
Note. Some models use a 33000 resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
					REPLACEMENT DATA				
T1	117VAC ① 1.78A	115VAC ③ .275A	6.3VAC ③ .6A	6.3VAC ③1.2A 25C-4 6.5VAC ③9A	76429		P-3079		

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
			REPLACEMENT DATA					
T2	201Ω tap @83, 33Ω,37Ω 5Ω	0Ω	76795		HVO-9	D-19		Horiz. Output Trans.
T3	550Ω	16Ω	76431	A-8113 ①	A-3035 ②	TSO-7	A-99X ①	Vert. Output Trans.
T4A	24Ω		76616 ②	DY-9A	MDF-70	TT-3	T-17	Horiz. Deflection Coils
B	45Ω							Vert. Deflection Coils

① Drill new mounting holes
② Complete with 6 contact male connector
③ Use original mounting bracket

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING DC RES. PRI.	RATING DC RES. SEC.	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
				REPLACEMENT DATA					
T5	6.5KΩ	3.2Ω	340Ω .5Ω	76897	A-3878 ①	A-2990 ①	RO-301 ①	S-5X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	NOTES
				REPLACEMENT DATA			
BP1	8"	PM	3.2Ω	75022	ST-117 Mod. P8-T	8A3I	PROPERTY OF F. BLANK

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 MA	RCA Victor PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
				REPLACEMENT DATA				
L1	.275A	30Ω	1.24HY	76498	C-3236 ①	C-2990 ①	TM-1753 ①	C-35X ①

① Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	RCA Victor PART No.	MERIT PART No.	IRC PART No.	NOTES
				REPLACEMENT DATA			
L2	Ant. Trans.	.5Ω	.5Ω	73591			
L3	Ant. Trans.	.5Ω	.5Ω	73591			
L4	IF Trap	0Ω		76843			Includes Core
L5	Ant.Shunt Coil	0Ω		76838			Includes Core
L6	Ant. Shunt Coil	0Ω		76837			Includes Core
L7	IF Trap	0Ω		76841			Includes Core
L8	FM Trap	0Ω		76540			Includes Core, part #76543
L9	Ant. Coils	0Ω		76556			Includes stator complete with rotor, coils, C11, R9 & R10
L10	Ant. Shunt Coils	0Ω		76584			Includes stator complete with rotor, coils, C12 & R11 Channel 13
L11	Ant. Coil	0Ω		76561			
L12	Fil. Choke	0Ω		73477			
L13	IF Trap	0Ω		76535			
L14	Neutralizing Coil	0Ω		76562			
L15	RF Coils	0Ω		76553			Includes stator complete with rotor, coils, C20 & R16
L16	RF Coil	0Ω		76529			Channel 13, part no. includes .8-3.8MMF capacitor
L17	Mixer Grid Coils	0Ω		77253			Includes stator complete with rotor, coils C21, C22, R17, R18 & R19
L18	Osc. Coils	0Ω		77206			Includes stator complete with rotor, coils, C26 & C28
L19	Fil. Choke	0Ω		76763			
L20	Fil. Choke	0Ω		76763			
L21	Fil. Choke	0Ω		77206			
L22	Conv. Plate	.1Ω		77148			Includes 2.2KΩ resistor
L23	RF Choke	.1Ω		77153			
L24	1st. Video IF Grid	0Ω	.2Ω	77198			Includes Trap & 5.6KΩ resistor
L25	1st. Video IF Plate	.3Ω		77197			Includes Trap, also includes 4.7KΩ resistor & 100MMF capacitor
L26	2nd. Video IF Grid	.2Ω		76435			Includes Trap
L27	Fil. Choke	0Ω		73477			
L28	3rd. Video IF	.2Ω	.2Ω	76433			
L29	4th. Video IF	.2Ω	.2Ω	76433			
L30	Series Peaking Coil	5Ω		77195	TV-181 *		120 Microhenries, wound on 3.3KΩ resistor
L31	4.5MC Trap	2Ω		77235	TV-151 ●		Wound on 91MMF capacitor
L32	Shunt Peaking Coil	7.1		71528	TV-185		250 Microhenries
L33	Shunt Peaking Coil	18Ω		77194			1000 Microhenries
L34	Series Peaking Coil	6.5Ω		76647	TV-182		180 Microhenries wound on 22KΩ resistor
L35	1st. Sound IF	6.7Ω		76437			Tapped ① 1.6Ω
L36	2nd. Sound IF	5.5Ω	3.3Ω	76438	TV-108 †		
L37	Ratio Det.	4.3Ω	.1Ω	76439	TV-110		Tertiary Winding - .5Ω
L38	Horiz. Osc.	140Ω		76440	TV-183		Tapped ② 35Ω, Horiz. Waveform Winding - 38Ω
L39	RF Choke	.72Ω		76840		CL-1	1.5 Microhenries
L40	Width Coil	12Ω		76441	MWC-1		
L41	Horiz. Lin.	21Ω		76442	MWC-1		

* Parallel with 3.3KΩ resistor
† Drill new mounting holes.
● Drill mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	RCA Victor PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	NOTES
		REPLACEMENT DATA					
M1	.275A	76452	NK5	6Q84	1023A	6S350	
M2	.275A	76452	NK5	6Q84	1023A	6S350	

FUSES

ITEM No.	TYPE	RATING	RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
			REPLACEMENT DATA					
M3	3AG P/T	1/4A 250V.	73800		318.250 (3AG-1/4A P/T)		GJV-1/4	

RCA VICTOR
MODELS 17T250DE, 17T261DE (Ch. KCS74)

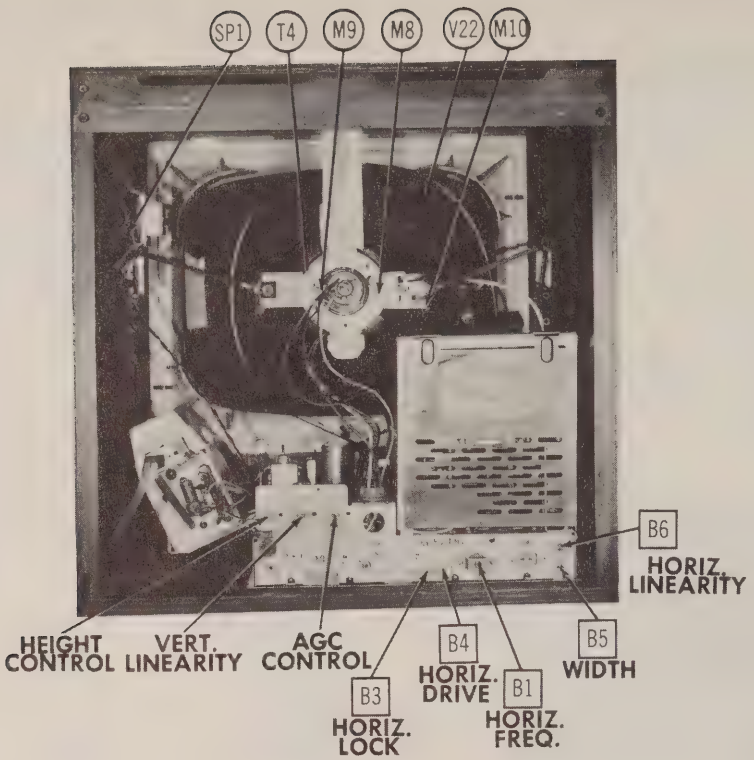
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					RCA Victor PART No.		
M4	Bayonet	7.5	.2	White	11765		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M5	RF Tuner	KRK11A	
M6	5th. Video IF		Video Det. Assy. Part #76436 complete with crystal. Crystal May be ordered seperately Part # 76675.
	Resistor		10KΩ
	Capacitor		8MMF
	Capacitor		10MMF
	Peaking Coil		36 Microhenries
	Crystal		1N60
M7	Switch	77215	TV-Phono Selector and Tone Control.
M8	Focus Magnet	76168	
M9	Ion Trap	76141	
M10	Magnet	76633	Pin Cushion Correction, Support Arm included
A11	Trimmer	71496	IF Input Link, 5-70MMF
B3, B4	Trimmer (Dual)	75217	Horizontal Locking Range-10-160MMF, Horizontal Drive - 10-160MMF
	Cabinet Back	77213	Complete, Model 17T250DE
	Cabinet Back	77214	Complete, Model 17T261DE
	Escutcheon	75456	
	Safety Glass	77026	
	Knob	76596	Brightness, Vertical Hold, Beige (2 Used).
	Knob	75464	Off/On Volume, Contrast, Horizontal Hold, Beige (3 used).
	Knob	76598	TV-Phono Selector and Tone, Beige.
	Knob	76594	Channel Selector, Beige.
	Knob	76592	Fine Tuning, Beige.
	Knob	76595	Brightness, Vertical Hold, Maroon (2 Used).
	Knob	74963	Off/On Volume, Contrast, Horizontal Hold, Maroon (3 Used),
	Knob	76597	TV-Phono Selector and Tone, Maroon.
	Knob	76593	Channel Selector, Maroon.
	Knob	76591	Fine Tuning, Maroon.
	Mask	77022	



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

HORIZONTAL FREQUENCY ADJUSTMENT
Turn the horizontal hold control to the extreme clockwise position.
Adjust the horizontal frequency slug (B1) until the picture is just out of sync and the horizontal blanking appears as a vertical or diagonal black bar in the picture. Then adjust B1 until the bar moves out of the picture leaving it in sync.

HORIZONTAL LOCKING RANGE ADJUSTMENT
Set the horizontal hold fully counter clockwise.
Momenarily remove the signal by switching to another channel and back. If the picture remains in sync turn B1 slightly and remove the signal as before. Repeat until the picture falls out of sync with diagonal black bars sloping to the left. Slowly turn the horizontal hold clockwise and note the least number of bars just before the picture falls into sync.
If more than 3 bars are present adjust the horizontal locking range trimmer (B3) clockwise. If less than 2 bars are present adjust the horizontal waveform slug (B2) counter clockwise. Adjust B3 until 2 or 3 bars are present at the pull in point.
If stable horizontal sync is not obtained by these adjustments and the AGC system is properly adjusted it will be necessary to make the horizontal oscillator waveform adjustment.

HORIZONTAL OSCILLATOR WAVEFORM ADJUSTMENT
FIELD ADJUSTMENT
Turn the horizontal hold fully clockwise.
Place adjustment tools on B1 and B2 for simultaneous adjustment.
Turn B1 until picture falls out of sync with one diagonal bar sloping downward to the right. Turn B2 into the coil while at the same time adjusting B1 to maintain 3 or 4 diagonal bars on the screen. Continue this procedure until the oscillator begins to motor boat , then turn B2 out of coil until motorboating just stops. Adjust B1 until picture synchronizes, then reverse the direction of adjustment and continue turning B1 until picture falls out of sync. No more than 3 or 4 bars should appear with continued adjustment of B1. Instead the oscillator should start to motorboat. Adjust B2 until this condition is obtained.
ADJUSTMENT USING OSCILLOSCOPE
Connect the low capacity probe of an oscilloscope to erminal C of L38.
Turn the horizontal hold control one quarter turn from clockwise position so that the picture is synchronized.
Adjust the horizontal waveform slug (B2) for a pattern on the scope as in Fig. 9, with the broad and sharp peaks of equal height.

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUSTMENTS
Adjust the horizontal drive trimmer (B4), counter clockwise until compression of the middle of the picture is noted, then clockwise just enough to remove the compression.
Adjust the width control slug (B5) for a picture slightly wider than necessary to fill the picture mask horizontally.
Adjust the horizontal linearity control slug (B6) for a picture that is symmetrical from left to right.

AGC THRESHOLD CONTROL ADJUSTMENT
Tune receiver to strongest TV signal available in that area. Adjust contrast control for maximum contrast. Turn AGC threshold control counter clockwise until picture overloads, then reduce the contrast control setting for normal viewing.

PIN CUSHION CORRECTION
Loosen the screws which hold the correction magnet arms and position the magnets until the sides of the raster appear straight, then tighten screws. It may be necessary to bend the magnet arms slightly for full correction.

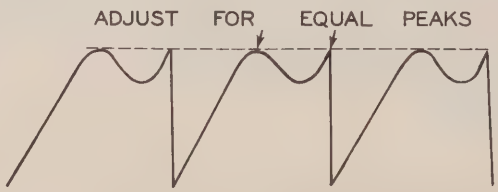
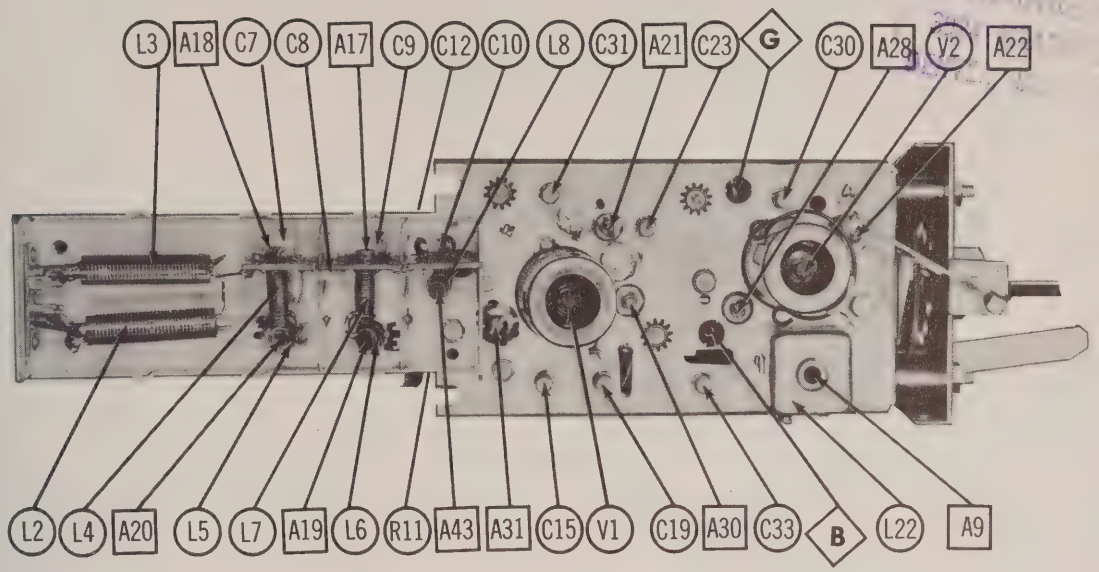
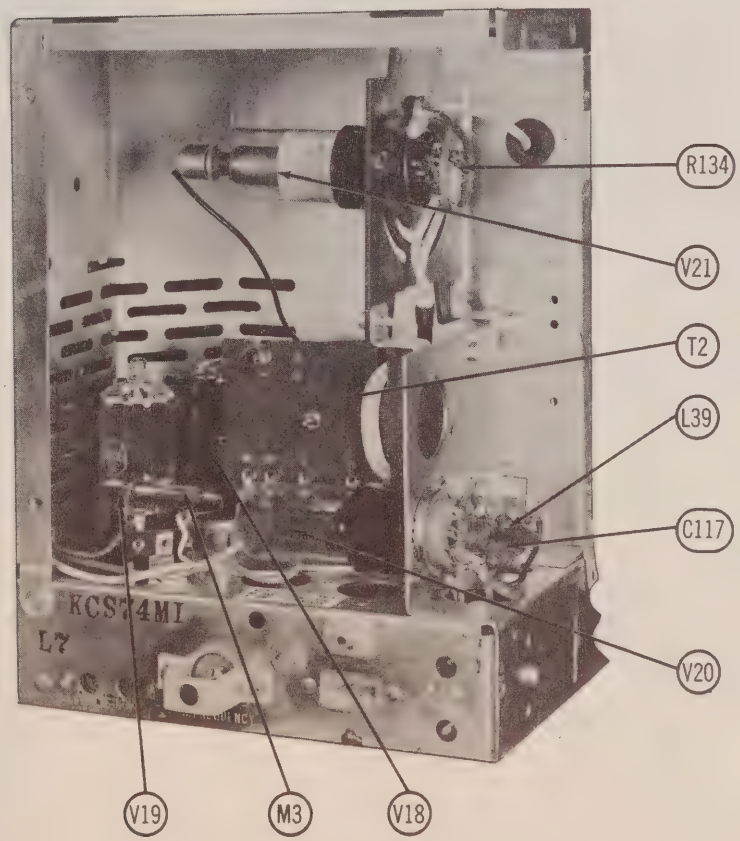


FIG. 9

PROPERTY OF
L. F. RIANC



RF TUNER – TOP VIEW



HIGH VOLTAGE COMPARTMENT

REVERE MODELS T-70153, T-70157, T-70163, T-70167, T-70253, T-70257, T-70263, T-70267, T-77153, T-77157, T-77163, T-77167, T-77253, T-77257, T-77263, T-77267

Figure 1A, Model T-77163

Figure 1B, Model T-70163

GENERAL INFORMATION

Revere 70,000 Series Tape Recorders feature fingertip operation for "Stop", "Play", "Speaker" and "Record". These units are designed to record and playback two tracks of material on standard width recording tape, which doubles the playing time of a 5" or 7" reel of tape with no loss of frequency response or quality. Recordings can be made from microphone, phonograph, external radio or television, in addition to those made directly from the self contained radio incorporated in some models. Recordings can be played through the Revere speaker, or an external speaker, through use of the Radio Attachment Cord.

On the serial nameplate, located on the rear of the cabinet, there appears the model number, along with the speed, current and voltage at which that particular unit is designed to operate.

Model No.	Line Voltage	Tape Speed	Model No.	Line Voltage	Tape Speed
T-70153 (TS-750)	120, 50∿	3-3/4	T-77153 (TRS-850)	120, 50∿	3-3/4
T-70157 (TS-15)	120, 50∿	7-1/2	T-77157 (TRS-25)	120, 50∿	7-1/2
T-70163 (T-700)	120, 60∿	3-3/4	T-77163 (TR-800)	120, 60∿	3-3/4
T-70167 (T-10)	120, 60∿	7-1/2	T-77167 (TR-20)	120, 60∿	7-1/2
T-70253 (TS-752)	220, 50∿	3-3/4	T-77253 (TRS-852)	220, 50∿	3-3/4
T-70257 (TS-17)	220, 50∿	7-1/2	T-77257 (TRS-27)	220, 50∿	7-1/2
T-70263 (TS-762)	220, 60∿	3-3/4	T-77263 (TRS-862)	220, 60∿	3-3/4
T-70267 (TS-16)	220, 60∿	7-1/2	T-77267 (TRS-26)	220, 60∿	7-1/2

Above models contain built-in radio.

Using both channels of the tape, the recording time for the various speeds is as follows:

SIZE	SPEED 3-3/4"	SPEED 7-1/2"
5" reel	1 hour	1/2 hour
7" reel	2 hours	1 hour

CAUTION: Do Not Use on Direct Current. Check Serial Nameplate at Rear of Machine for Proper Current and Voltage.

Manufactured by:

Revere Camera Company
320 East Twenty-First Street
Chicago 16, Illinois

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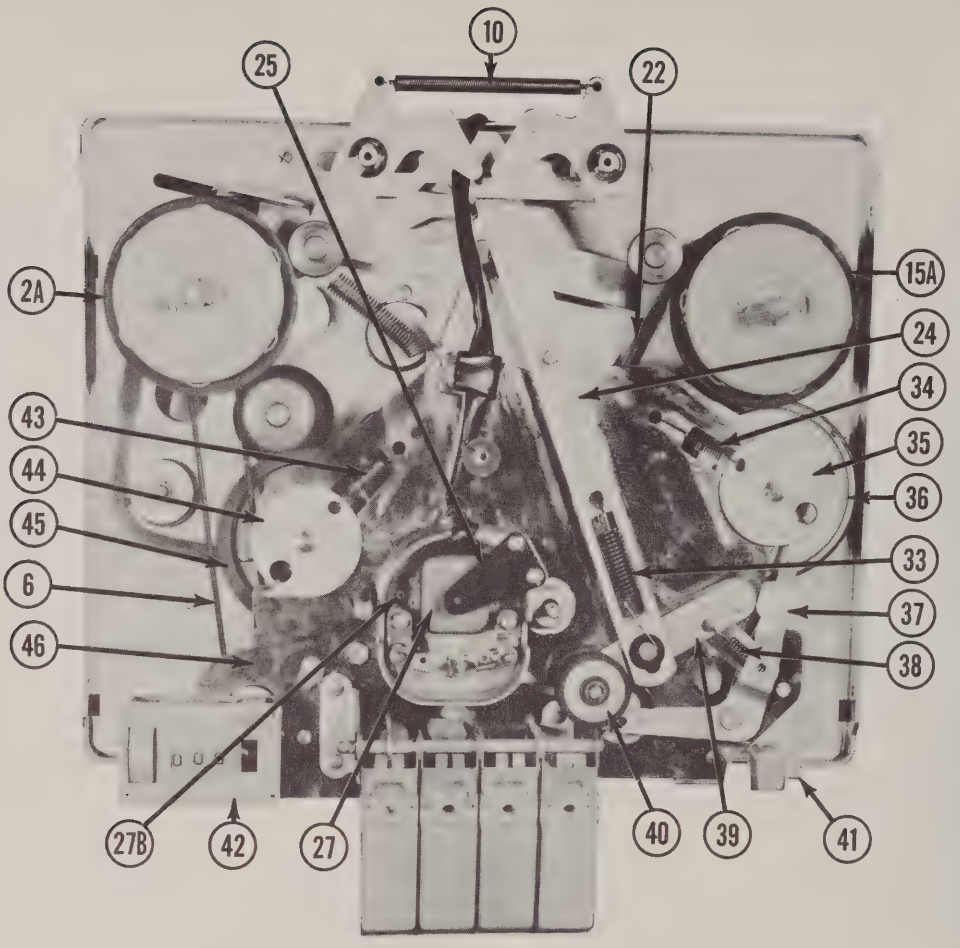


Figure 2

OPERATING INSTRUCTIONS

Preparing the Revere for Recording -

1 Insert the line cord into a convenient wall receptacle of the proper rating.

2. Place a reel of tape on the left spindle and an empty reel on the right spindle, making sure the reels are fully seated.

3. Unwind about 14" of tape from the reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot making sure the dull coated side of the tape faces the rear of the recorder.

NOTE: This recorder uses Type "A" wound tape, i.e. the dull magnetic coated side faces inward on the reel. If the tape to be used is Type "B" (coated side facing outward) place the reel on the left spindle, so that the tape will lead-off in a clockwise direction. Bring the tape behind the top plastic plate (not through the head slot) and thread it on the empty reel in the normal manner. Place the fast forward lever (14) in the fast forward position and allow the full reel of tape to wind on the empty reel. The dull magnetic side of the tape will now be facing inward.

4. Feed the end of the tape into one of the radial slots in the empty reel. Use a pencil or some similar object to hold the tape in place and rotate the reel counterclockwise until the tape is secured to the reel.

5. Turn the "Off-On" Volume Control on. This supplies power to the entire recorder in models not having a self contained radio. In models equipped with a radio it is also necessary to place the motor switch in the "On" position.

To Record From Microphone -

NOTE: Erasing of recorded material takes place automatically when new material is recorded; therefore, no special step is necessary to erase recordings before new recordings are made.

1. Insert the microphone plug into the "Microphone Input" jack.

2. Set the Index Counter to zero. This enables you to rewind to the exact start of a recording.

3. While talking into the microphone, adjust the "Volume Control" until "Normal" indicator flashes and no flashing occurs at the "Distorted" indicator.

NOTE: Correct recording volume is very important, Too weak a signal, which does not cause the "Normal" indicator to flash, will result in weak playback and high background noise. Too strong a signal, causing the "Distorted"

indicator to flash, will result in distortion during playback.

4. Release automatic record key lock by moving it to the right. Then press the "Record" key.

CAUTION: Do not place microphone on the same table with recorder, as the microphone is sensitive enough to pick up vibration.

To Record from Built-In Radio -

1. No external connections are needed. Set record level and record as described in "To Record from Microphone". (Any plug must be removed from "Input Jack".)

2. If it is desired to listen to the program as it is being recorded, press the "Speaker" key.

To Record from External Radio -

Recordings can be made from a radio by placing the microphone near the loudspeaker of the radio, however this type of recording may not be satisfactory as other sounds may be picked up by the microphone which, as a result, will be recorded on the tape. A superior quality recording can be made by connecting the Radio Attachment Cord, supplied with the recorder, as follows:

1. Insert the cord plug into the "Input Jack" of the recorder.

2. Connect the cord clips across the voice coil terminals on the radio speaker.

3. Proceed with recording as described in "To Record from Microphone".

To Record from Phonograph -

Most crystal or magnetic type phonographs have a standard phono plug that can be plugged directly into the "Input Jack", otherwise, the Radio Attachment Cord may be used as follows:

1. Insert the cord plug into the "Input Jack".

2. Connect the cord clips to the pickup leads on the phonograph.

NOTE: Should a hum develope from this connection, reverse the cord clips on the pickup leads.

3. Proceed with recording as described in "To Record from Microphone.

To Record from a Television Receiver -

1. Refer to paragraph "To Record from External Radio".

Twin-Track Recording -

1. Revere Recorders are designed so that each reel of tape holds two full length recordings, one on each half of the dull side of the tape.

2. After the first track has been recorded, a second recording can be made on the same tape by removing the reels from the recorder, turning them over, then placing the full reel on spindle (2) and the empty reel on spindle (15).

3. Thread the tape and proceed with the recording as previously described.

4. After the second track has been recorded, the first track is ready to be played without rewinding, by changing reels as described in step No. 2, above.

Splicing and Editing -

NOTE: Since it is impossible to edit and splice one "track" without affecting the other, recordings, which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc.. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excess width.

To Rewind the Tape -

1. The tape may be rewound at any time by moving the fast forward lever (14) to the left.

2. By moving the fast forward lever (14) back and forth the tape can be inched along to the number previously noted on the Index Counter.

3. After reaching the desired portion of the tape, move the fast forward lever (14) to the middle or neutral position to stop all tape movement.

To Play a Recording -

1. Press "Play Key" and adjust Volume and Tone control to desired levels.

To Listen to Built-In Radio -

1. Press speaker key while unit is in "Stop". (Plug must be removed from Input Jack.)

2. The motor switch (M4) may be turned off to conserve the mechanism, when using radio for long periods.

Fast Forward -

1. Any portion of a recording may be skipped, or any recording may be located in a few seconds by moving the fast forward knob (14) to the right. A few seconds of "Fast Forward" is equivalent to several minutes of playing time.

2. By moving knob (14) back and forth the tape can be inched along to an exact point.

3. After reaching the desired portion of the tape, move the fast forward knob (14) to the middle or neutral position to stop all tape movement.

NOTE: The fast forward or rewind mechanism can be engaged at any time, while the recorder

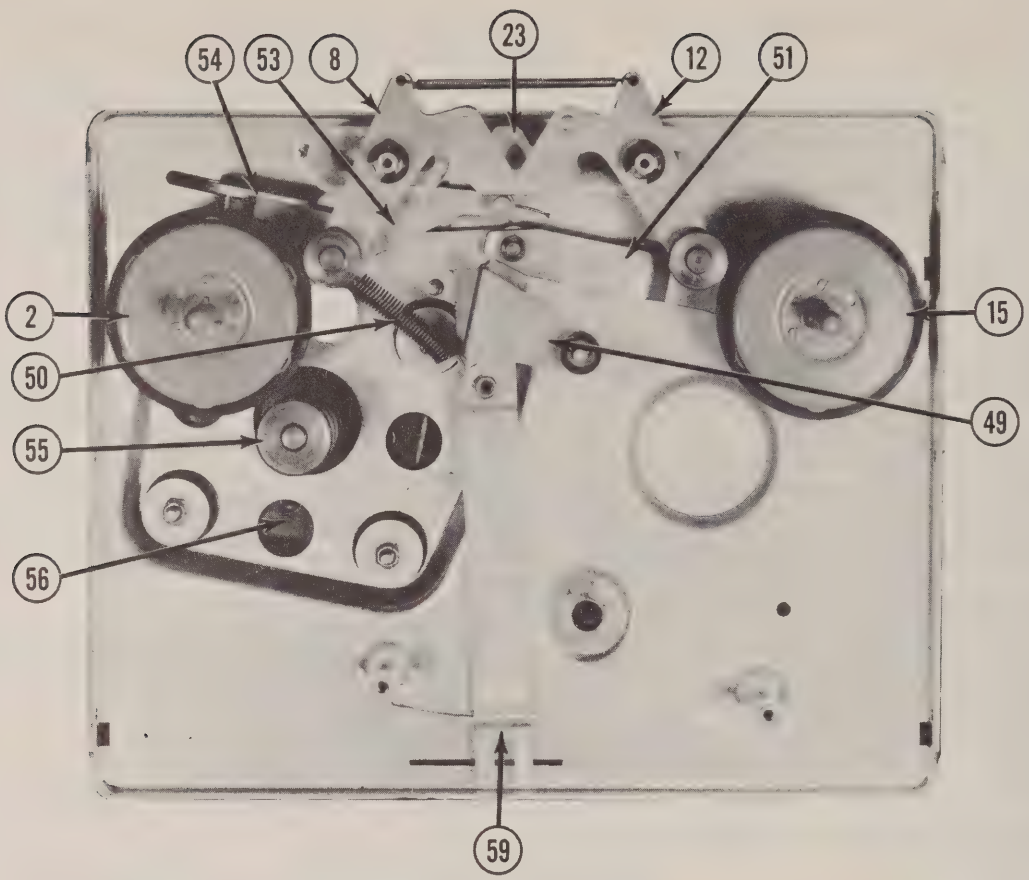


Figure 3

is in any function, and any previously depressed keys will automatically disengage.

To Use an External Speaker -

Any size speaker, of the permanent magnet type having a 3.2 ohm voice coil, may be used by connecting the Radio Attachment Cord clips across the voice coil terminals of the speaker, then inserting the extension plug into the Extension Speaker Jack located on the rear panel.

The speaker in the recorder is automatically disconnected by inserting the extension plug.

To Use as Public Address System -

1. Insert the microphone plug into the "Microphone Input" jack.

2. Depress "Stop" and "Speaker" keys and adjust Volume and Tone control to suit.

ADJUSTMENTS

All service work, except cleaning the head assembly, requires removal of the unit from the carrying case.

Record Head Adjustment -

The primary purpose in head alignment is to provide the maximum frequency response.

NOTE: Before attempting to align the head, make certain that the difficulty is not due to an accumulation of tape coating residue on the pole surfaces.

1. If a constant frequency tape is not available, play back a tape previously recorded and align the head as follows:

The record head (27) is securely mounted on the head aligning plate (27A). The right side of the aligning plate is provided with a rocker action, while the left side is associated with a bristol head adjustment screw (27B). Rotating this screw changes the gap alignment with respect to the tape. Proper alignment is achieved when the maximum signal, at a given setting of the Volume Control, is reproduced from the alignment tape, as the alignment screw (27B) is turned in or out.

TROUBLES

Fails to Erase -

1. Pressure pad spring (29) loose or broken resulting in the pressure pad not holding tape firmly against erase laminations of the record head. Replace spring (29).

2. Pressure pad worn or missing. Replace pressure pad.

Fails to Record -

1. Pressure pad spring (32) loose or broken resulting in the pressure pad not holding tape firmly against record head laminations. Replace spring (32).

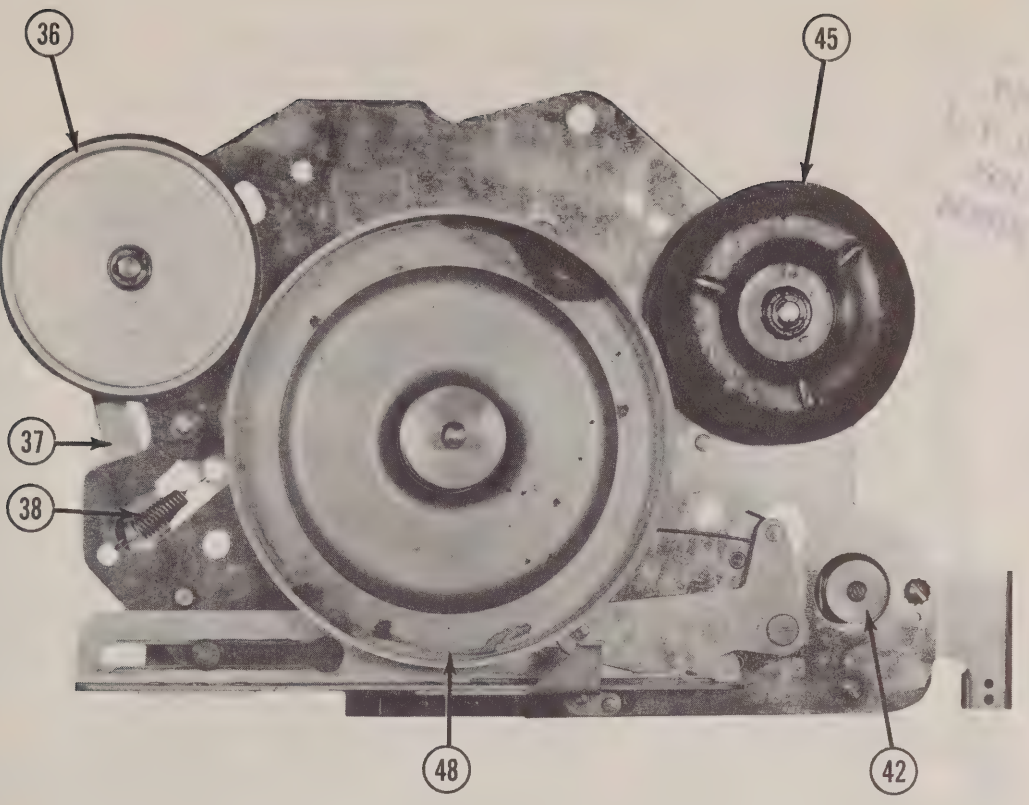


Figure 4

2. Pressure pad worn or missing. Replace pressure pad.

3. Check the recording tape to see if the dull magnetic side is facing the head. If the dull side is facing outward, a recording cannot be made.

No Drive in Record or Playback -

1. Pressure roller spring (33) loose or broken resulting in pressure roller (40) not being held in contact with the capstan. Replace spring.

2. Motor pulley (55) loose on motor shaft.

3. Idler tension spring (43) loose or broken, thereby not holding idler wheel (45) in engagement with motor pulley (55) and flywheel (48).

4. Take-up belt (22) stretched or not properly connected.

5. Check for oil or grease on take-up belt (22). Clean with alcohol.

6. Check for oil or grease on motor pulley (55), idler wheel (45) and flywheel (48). Clean with alcohol.

No Drive in Fast Forward -

1. Idler tension spring (34) loose or broken, thereby not holding idler wheel (36) in engagement with flywheel (48) and take-up hub (19).

2. Check for oil or grease on motor pulley (55), idler wheel (45), flywheel (48) and idler wheel (36). Clean with alcohol.

3. Motor pulley (55) loose on motor shaft.

No Drive in Rewind -

1. Motor pulley (55) loose on motor shaft.

2. Check for oil or grease on supply spindle tire (2A). Clean with alcohol.

3. Storage reel drag spring (50) loose or broken. Replace.

Tape Overruns or Spills When Shifting to Neutral From Rewind or Fast Forward -

1. Brake arm springs (10) loose or broken, thereby not allowing brake rollers to contact spindle tires (2A and 15A) when mechanism is placed in neutral. Replace springs.

Speed Variation or "Wow" -

1. Check the capstan (48A), pressure roller (40), idler wheel (45), motor pulley (55) and flywheel (48) for oil or foreign material. Clean these parts with alcohol.

2. Check motor pulley (55) to see if it is secured to the motor shaft.

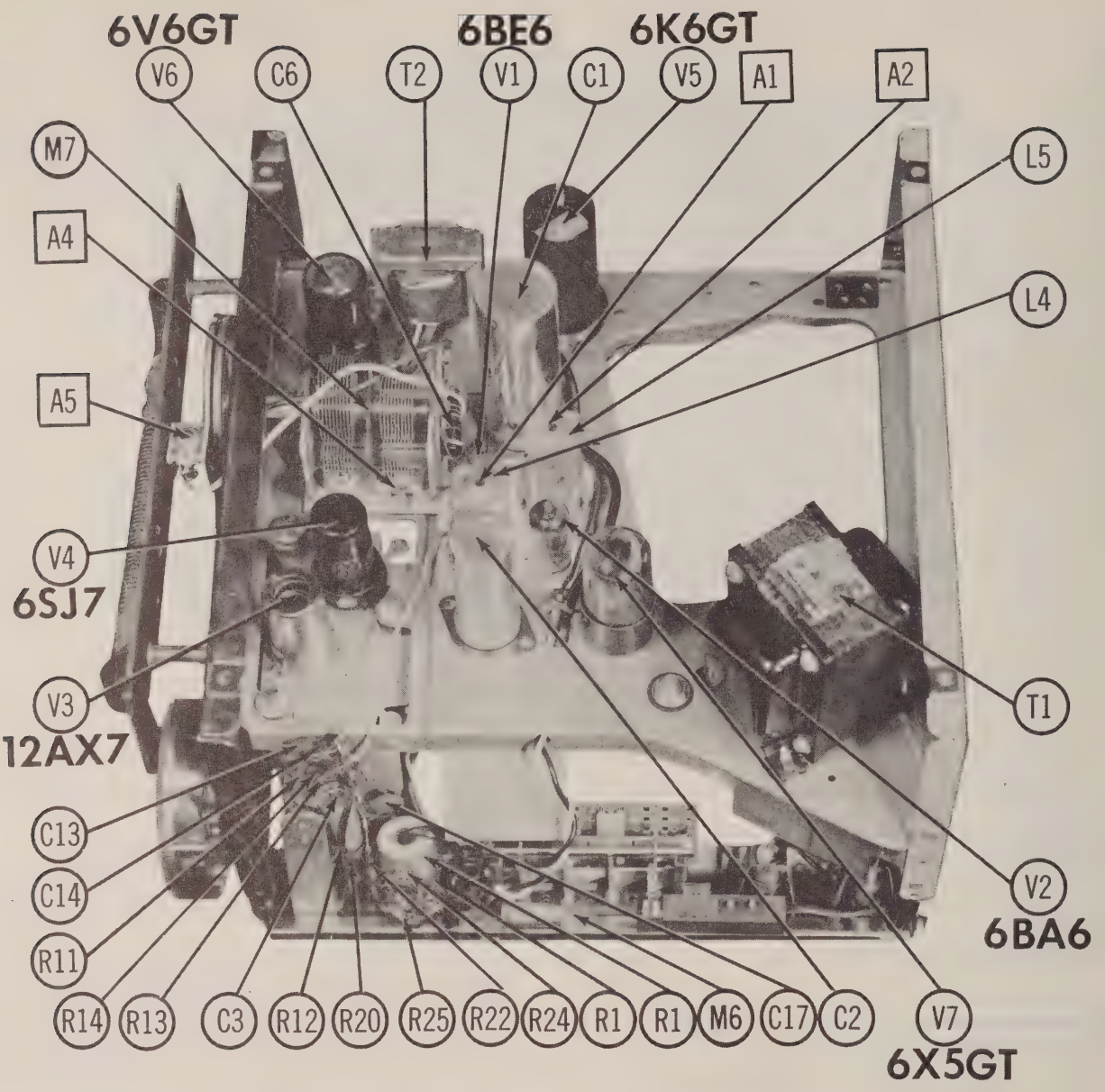


Figure 5

3. Check idler tension spring (43) to see if it is in firm contact with motor pulley (55) and flywheel (48).

CLEANING

The recording head (27), capstan (48A) and pressure roller (40) are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. This accumulation should be periodically removed since it may cause faint recordings and poor playback. Wipe off the above surfaces carefully with a clean cloth. If dirt is caked or hard and will not come off with a dry cloth, dampen the cloth slightly with alcohol.

CAUTION. Do not use a brush when cleaning the record head laminations as this could mar the surfaces, resulting in poor performance.

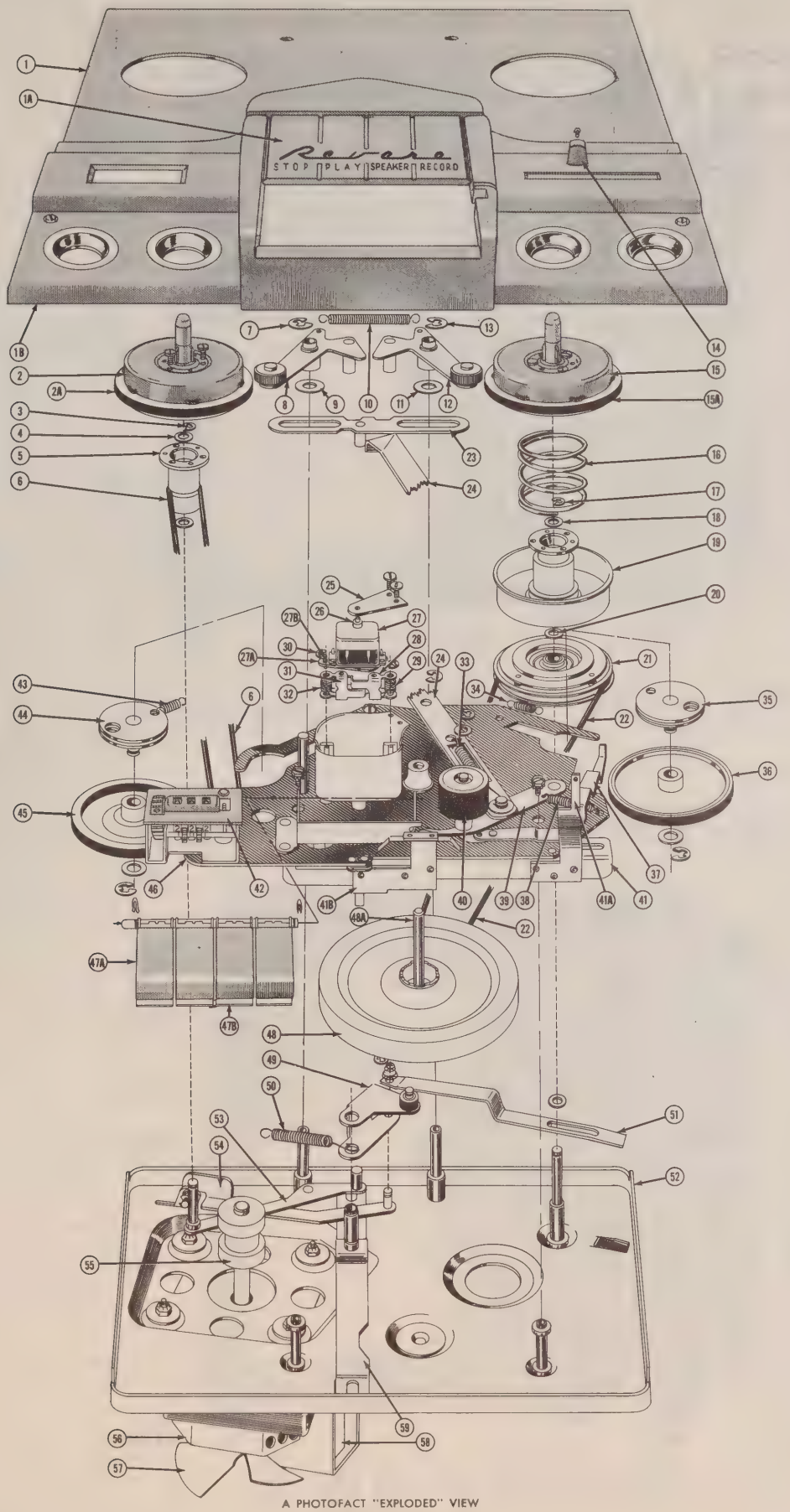
LUBRICATION

In normal use, the Revere requires no lubrication. The motor, flywheel shaft and spindles operate in oilite bearings. When unit is disassembled for repair, clean all bearings and lubricate with light oil. If cam and lever actions become sluggish and slow to respond, it may be due to gum or dirt in the pivots and under the levers. Clean off all old lubricant, accumulated dirt and gum with a clean cloth and cleaning solvent. Apply lubricant in thin film on working surfaces only. Do not over-lubricate.

Lubricants to Use -

Oilite bearings - Light machine or spindle oil.

Moving parts - Wadhams BRB#1 or Lubriplate.



A PHOTOFACT "EXPLODED" VIEW

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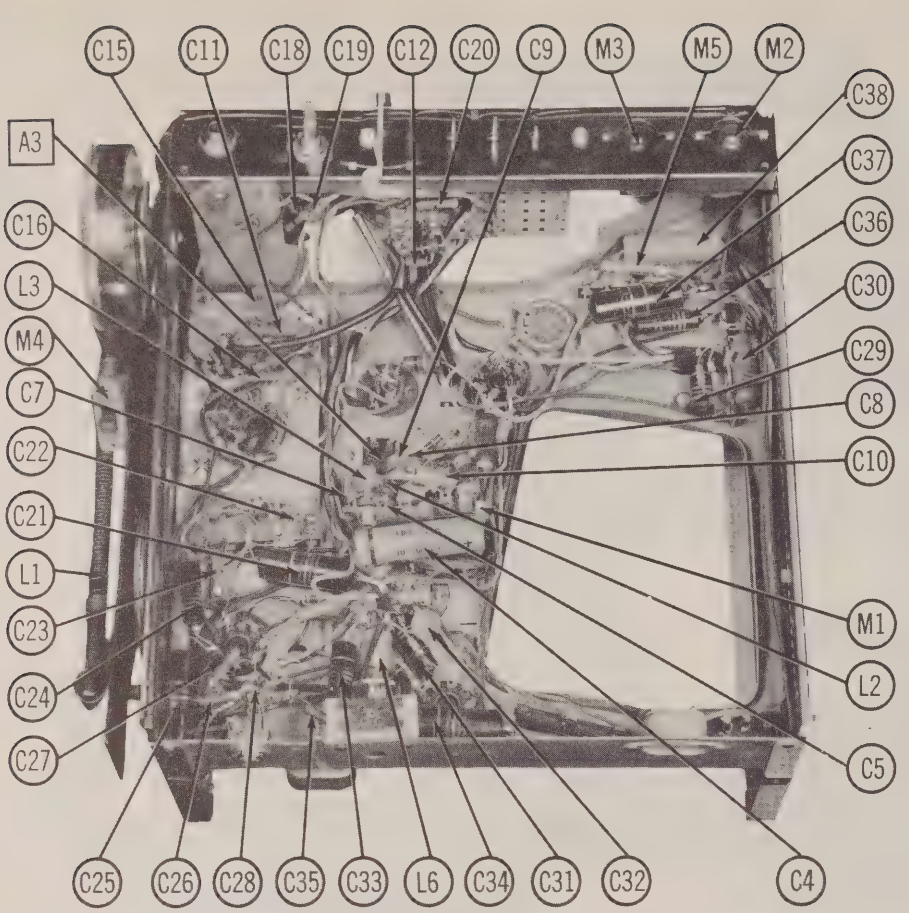


Figure 6

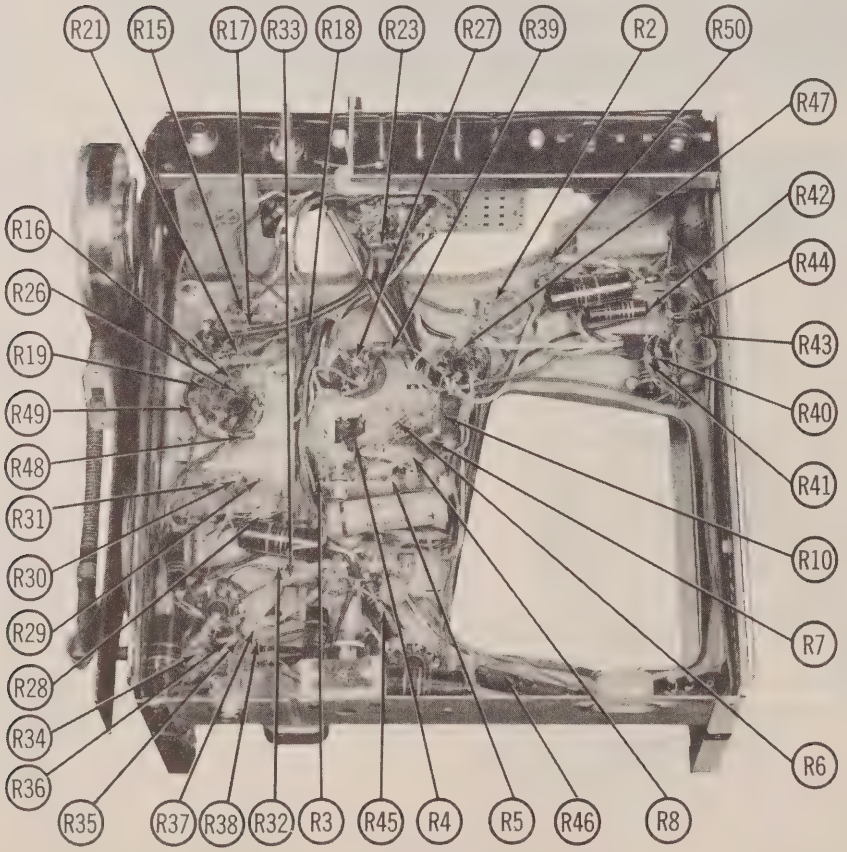
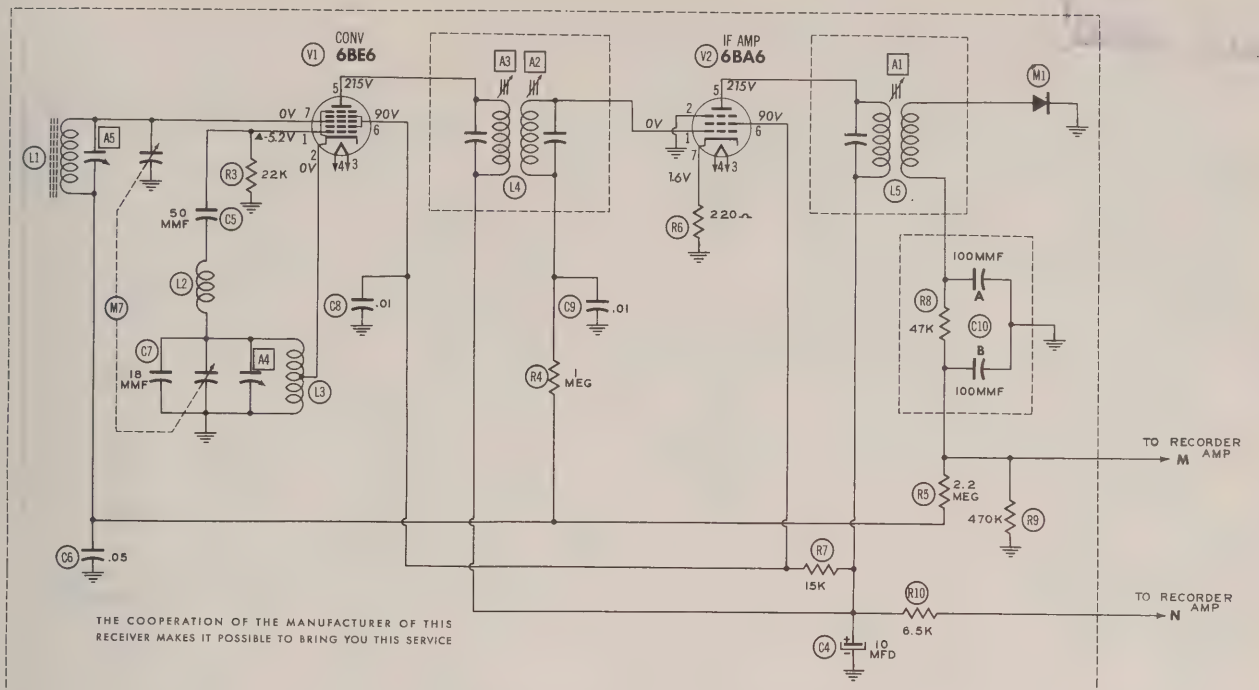


Figure 7



RADIO USED IN MODELS T-77163, T-77153, T-77263, T-77253, T-77167, T-77157, T-77267, & T-77257

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BE6	22KΩ	.3Ω	24Ω	24Ω	† 7.8KΩ	† 22.8KΩ	2.2Meg
V 2	6BA6	3.2Meg	0Ω	24Ω	24Ω	† 7.8KΩ	† 22.8KΩ	220Ω

ALL MEASUREMENTS TAKEN IN "RECORD-RADIO" POSITION.
▲ TAKEN WITH VACUUM TUBE VOLTMETER.
† MEASURED FROM PIN 8 OF V1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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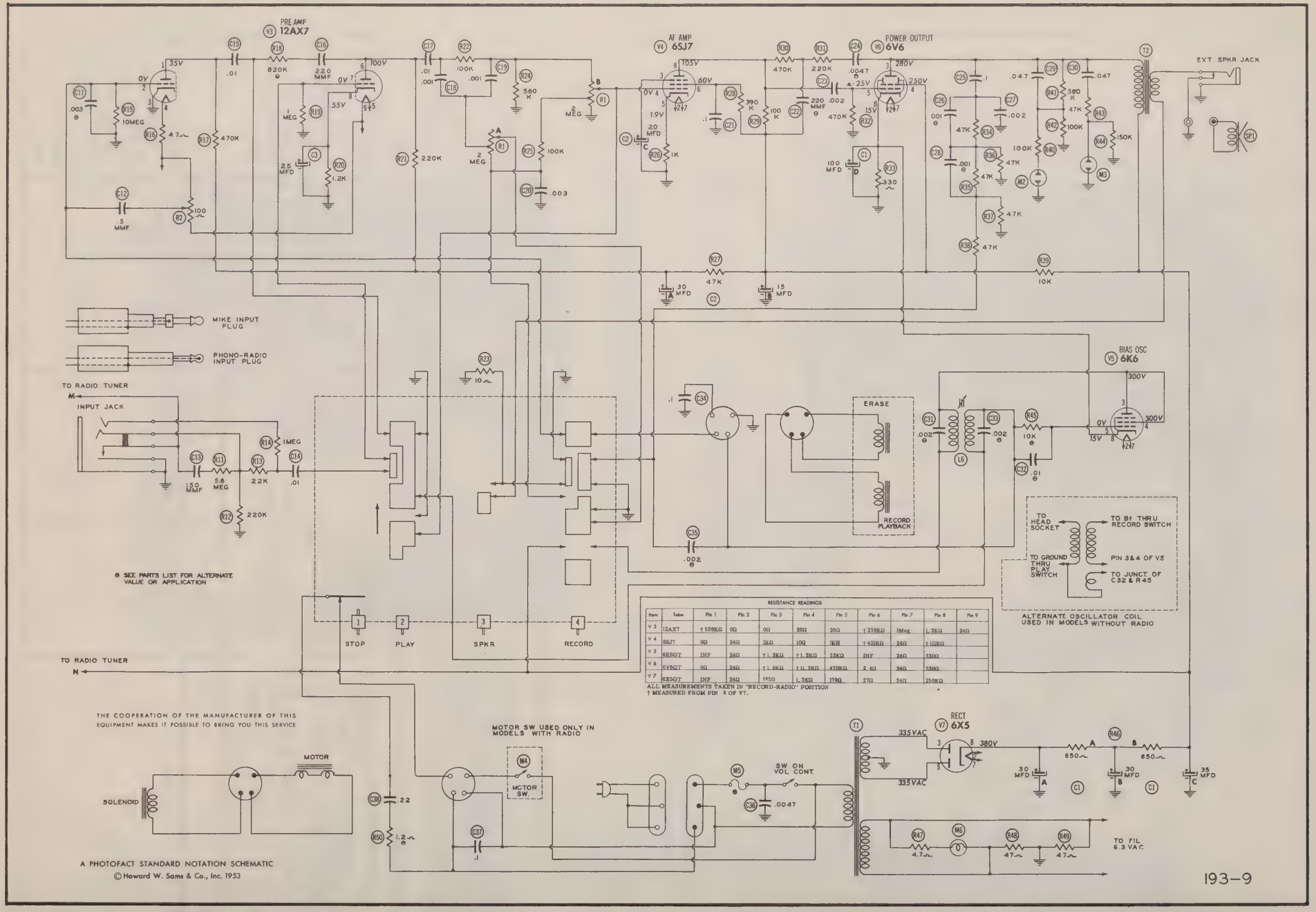
ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed, the last index mark on the dial drum should be opposite the index mark on top plate of recorder.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

TUNING RANGE--BROADCAST 540-1620 KC

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to Pin 7 (grid of 6BE6 (V1). Low side to chassis.	455KC (400Ω Mod)	Tuning gang fully open.	Across voice coil.	A1, A2 A3	Adjust for maximum output.
2.	"	"	1620KC	"	"	A4	"
3.		Loop.	1500KC	Tune to 1500KC signal.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.


PRE AMP V3 12AX7
AF AMP V4 6SJ7
POWER OUTPUT V6 6V6
BIAS OSC V5 6K6
RECT V7 6X5
EXT SPKR JACK
MIKE INPUT PLUG
PHONO-RADIO INPUT PLUG
TO RADIO TUNER
INPUT JACK
ERASE
RECORD PLAYBACK
STOP
PLAY
SPKR
RECORD
MOTOR
SOLENOID
MOTOR SW.
SW ON VOL CONT.
TO HEAD SOCKET
TO B+ THRU RECORD SWITCH
TO GROUND THRU PLAY SWITCH
PIN 3 & 4 OF V5
TO JUNCT. OF C32 & R45
ALTERNATE OSCILLATOR COIL USED IN MODELS WITHOUT RADIO
MOTOR SW. USED ONLY IN MODELS WITH RADIO
335 VAC
380V
TO FIL. 6.3 VAC
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
RESISTANCE READINGS
ALL MEASUREMENTS TAKEN IN "RECORD-RADIO" POSITION
† MEASURED FROM PIN 8 OF V7.
THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
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ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
V1		Converter, 6BE6
V2		IF Amp., 6BA6
V3	TRA-1155	Pre-Amplifier, 12AX7
V4	TRA-1154	AF Amplifier, 6SJ7
V5	TRA-1153	Bias Oscillator, 6K6-GT
V6	TRA-1151	Power Output, 6V6-GT
V7	TRA-1152	Rectifier, 6X5-GT
C1A	TRA-1455	Filter, Electrolytic, 30 mfd. @ 450 V
C1B		Filter, Electrolytic, 30 mfd. @ 450 V
C1C		Filter, Electrolytic, 35 mfd. @ 400 V
C1D		Output Cathode Bypass, 100 mfd. @ 25 V
C2A	TRA-1451	Decoupling, Electrolytic, 30 mfd. @ 350 V
C2B		Decoupling, Electrolytic, 15 mfd. @ 300 V
C2C		AF Amplifier Cathode Bypass, Electrolytic, 20 mfd. @ 25 V
C3	TRA-1453	Pre-Amplifier Cathode Bypass, Electrolytic, 25 mfd. @ 25 V
C4	TRA-1456	Decoupling, Electrolytic, 10 mfd. @ 300 V
C5		Osc. Grid Cap. 50 mmf.
C6		AVC Network, .05 mfd.
C7		Fixed Trimmer, 18 mmf.
C8		Conv. Screen Bypass, .01 mfd.
C9		AVC Network, .01 mfd.
C10A		Diode RF Filter, 100 mmf.
C10B		Diode RF Filter, 100 mmf.
C11		Pre-Amp., Grid Filter, .003 mfd. (680 mmf. *)
C12		Hum Bypass, .5 mmf.
C13	TRA-1429	Audio Coupling, 150 mmf.
C14		Audio Coupling, .01 mfd.
C15		Audio Coupling, .01 mfd.
C16	TRA-1422	Tone Compensation, 220 mmf.
C17		Audio Coupling, .01 mfd.
C18		Tone Compensation, .001 mfd.
C19		Tone Compensation, .001 mfd.
C20		Tone Compensation, .003 mfd.
C21	TRA-1412	AF Amp. Screen Bypass, .1 mfd.
C22	TRA-1422	AF Amp. Plate Bypass, 220 mmf. (100 mmf. *)
C23		Audio Coupling, .002 mfd.
C24	TRA-1441	Feedback .0047 mfd. (.0068 mfd. *)
C25	TRA-1412	Audio Coupling, .1 mfd.
C26		Tone Compensation, .001 mfd. (500 mmf. *)
C27		Tone Compensation, .002 mfd.
C28		Tone Compensation, .001 mfd. (500 mmf. *)
C29	TRA-1411	Indicator Coupling, .047 mfd.
C30	TRA-1411	Indicator Coupling, .047 mfd.
C31		Fixed Trimmer, .002 mfd. (.0047 mfd. ♦)
C32		Bias Osc. Grid Cap., .01 mfd. (.002 mfd. ♦)
C33		Fixed Trimmer, .002 mfd. (.022 mfd. ♦)
C34	TRA-1412	Record Playback Coil Isolation, .1 mfd.
C35		Bias Osc. Coupling, .002 mfd. (.001 mfd. *)
C36	TRA-1441	Line Filter, .0047 mfd.
C37	TRA-1412	Line Filter, .1 mfd.
C38	TRA-1413	Solenoid Shunt, .22 mfd.
R1A	TRA-1701	Tone Control, 2 Meg. 1/2 Watt
R1B		Volume Control and Switch, 2 Meg. 1/2 Watt
R2	TRA-1703	Hum Control, 100 ohm, 1/2 Watt
R3	TRA-1303	Oscillator Grid, 22K ohm, 1/2 Watt
R4	TRA-1312	AVC Network, 1 Meg., 1/2 Watt
R5		AVC Network, 2.2 Meg., 1/2 Watt
R6		IF Amp. Cathode, 220 ohm, 1/2 Watt
R7		Screen Dropping, 15K ohm, 2 Watt
R8		Diode Filter, 47K ohm, 1/2 Watt
R9	TRA-1324	Diode Load, 470K ohm, 1/2 Watt
R10	TRA-1353	Decoupling, 6500 ohm, 5 Watt
R11	TRA-1315	Tone Compensation, 5.6 Meg., 1/2 Watt
R12	TRA-1307	Input Shunt, 220K ohm, 1/2 Watt
R13	TRA-1303	Tone Compensation, 22K ohm, 1/2 Watt
R14	TRA-1312	Tone Compensation, 1 Meg., 1/2 Watt
R15	TRA-1313	Pre-Amp. Grid, 10 Meg 1/2 Watt
R16	TRA-1341	Filament Dropping, 4.7 ohm, 1/2 Watt W.W.
R17	TRA-1309	Pre-Amp. Plate, 470K ohm, 1 Watt
R18	TRA-1311	Tone Comp., 820K ohm, 1/2 Watt (560K ohm *)
R19	TRA-1312	Pre-Amp. Grid, 1 Meg., 1/2 Watt
R20	TRA-1302	Pre-Amp. Cath., 1200 ohm, 1/2 Watt
R21	TRA-1307	Pre-Amp. Plate, 220K ohm, 1/2 Watt
R22	TRA-1305	Tone Comp., 100K ohm, 1/2 Watt
R23	TRA-1321	Impediance Matching, 10 ohm, 1 Watt
R24	TRA-1310	Tone Comp., 560K ohm, 1/2 Watt
R25	TRA-1305	Tone Comp., 100K ohm, 1/2 Watt
R26	TRA-1301	AF Amp. Cath., 1K ohm, 1/2 Watt
R27	TRA-1304	Decoupling, 47K ohm, 1/2 Watt
R28	TRA-1308	AF Amp. Screen, 390K ohm, 1/2 Watt
R29	TRA-1323	AF Amp. Plate, 100K ohm, 1 Watt
R30	TRA-1324	Feedback, 470K ohm, 1/2 Watt
R31	TRA-1307	Feedback, 220K ohm, 1/2 Watt
R32	TRA-1324	Output Grid, 470K ohm, 1/2 Watt
R33	TRA-1331	Output Cath., 330 ohm, 2 Watt
R34	TRA-1304	Voltage Divider, 47K ohm, 1/2 Watt
R35	TRA-1304	Voltage Divider, 47K ohm, 1/2 Watt
R36	TRA-1304	Voltage Divider, 47K ohm, 1/2 Watt
R37	TRA-1304	Voltage Divider, 47K ohm, 1/2 Watt
R38	TRA-1304	Voltage Divider, 47K ohm, 1/2 Watt
R39	TRA-1332	Decoupling, 10K ohm, 2 Watt
R40	TRA-1305	Indicator Network, 100K ohm, 1/2 Watt
R41	TRA-1310	Indicator Network, 560K ohm, 1/2 Watt
R42	TRA-1305	Indicator Network, 100K ohm, 1/2 Watt
R43	TRA-1304	Indicator Network, 47K ohm, 1/2 Watt
R44	TRA-1306	Indicator Network, 150K ohm, 1/2 Watt
R45	TRA-1314	Bias Osc. Grid, 10K ohm, 1/2 Watt (33K ohm ♦)
R46	TRA-1352	Filter, 1300 ohm, 8 Watt, C.T.
R47	TRA-1341	Pilot Lamp Dropping, 4.7 ohm, 1/2 Watt, W.W.
R48	TRA-1342	Filament Shunt, 47 ohm, 1/2 Watt W.W.
R49	TRA-1342	Filament Shunt, 47 ohm, 1/2 Watt

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L. F. BEARDSLEY
3924 MEADE ST.

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
R50	TRA-1302	Solenoid Shunt, 1200 ohm, 1/2 Watt (3.3K ohm, 2 Watt #)
T1	TRA-1202	Power Transformer (220 Volt Units Use Part No. TRA-1203 in This Application.)
T2	TRA-1205	Output Transformer
SP1	TRA-1751	Speaker
L1	TRA-1863	Loop Antenna
L2		RF Choke
L3		Oscillator Coil
L4		Input IF
L5		Output IF
L6	TRA-1561	Bias Oscillator Coil (Models Employing a Radio Use Part No. TRA-1563 in This Application.)
M1		Crystal, 1N60
M2	TRA-1157	Neon Indicator, NE-45
M3	TRA-1157	Neon Indicator, NE-45
M4	TRA-1523	Motor Switch (Used Only on Models Employing a Radio.)
M5		Fuse, 1 Amp,, 1-6/10 Amp. or 2 Amp. (When Replacing Use Fuse of Duplicate Type and Value.)
M6	TRA-1159	Pilot Lamp, Type 47
M7		2 Gang Variable Capacitor

* Alternate part used in models employing tape speed of 7-1/2" per second.
♦ Alternate part used in models employing radio.
Alternate part used in models that operate from 220 volts.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	TR-7106	Top Stamped Cover
1A	TR-7002	Head Cleaning Cover
1B	TR-7001	Top Plastic Plate
2	TR-7107	Rewind Spindle Cup
2A	TR-7815	Spindle Cup Tire
3	TR-7522	Retaining Ring, Crescent Type 3/16" Shaft
4	TR-7504	Fiber Washer
5	TR-7208	Rewind Spindle Hub
6	TR-7810	Select-O-Meter Belt
7	TR-7520	Retaining Ring, Type "E" 1/8" Shaft
8	TR-7936	Left Brake
9	TR-7513	Washer, Brake Arm Pivot
10	TR-7606	Brake Arm Spring (2 Used)
11	TR-7513	Washer, Brake Arm Pivot
12	TR-7935	Right Brake
13	TR-7520	Retaining Ring, Type "E" 1/8" Shaft
14	TR-7006	High Speed Knob
15	TR-7107	Take-up Spindle Cup
15A	TR-7815	Spindle Cup Tire
16	TR-7609	High Speed Clutch Spring
17	TR-7522	Retaining Ring, Crescent Type 3/16" Shaft
18	TR-7504	Fiber Washer
19	TR-7108	High Speed Forward Cup
20	TR-7504	Fiber Washer
21A	TR-7109	Take-up Clutch Pulley
21B	TR-7110	Take-up Clutch Plate
21C	TR-7817	Take-up Clutch Felt
21D	TR-7608	Clutch Brake Spring (3 Used)
22	TR-7809	Take-up Belt
23	TR-7128	Rear Slide Cam
24	TR-7120	Brake Arm
25	TR-7150	Head Spring Retainer
26	TR-7249	Head Spring Retainer Insulating Stud
27	TR-7805	Recording Head (3-3/4" and 7-1/2" Per Sec.)
27A	TR-7136	Head Aligning Plate
27B	TR-7429	Head Alignment Screw, Bristol Head- #4-48-Flat Bottom-1/4"Long
28	TR-7145	Pressure Pad Arm
29	TR-7610	Pressure Arm Spring
30	TR-7523	Retaining Ring, Type "E" -3/16" Shaft
31	TR-7145	Pressure Pad Arm
32	TR-7610	Pressure Arm Spring
33	TR-7601	Pressure Roller Spring
34	TR-7605	High Speed Idler Spring
35	TR-7942	High Speed Slide Arm Guide
36	TR-7812	High Speed Idler Wheel
37	TR-7134	High Speed Forward Idler Arm
38	TR-7602	Pressure Roller Arm Spring
39	TR-7118	Pressure Roller Arm
40	TR-7813	Pressure Roller
41	TR-7122	High Speed Slide Arm
41A	TR-7124	High Speed Knob Arm
41B	TR-7125	High Speed Safety Arm
42	TR-7828	Select-O-Meter
43	TR-7605	Idler Spring
44	TR-7942	Idler Slide Assembly
45	TR-7811	Idler, Flywheel
46	TR-7104	Mechanism Plate - Upper
47A	TR-7131	Standard Key Arm (3 Used)
47B	TR-7132	Speaker Key Arm
	TR-7003	Plastic Keys for 47A and 47B
48	TR-7917	Flywheel
49	TR-7116	Toggle Arm
50	TR-7604	Rewind Arm Spring
51	TR-7115	Take-up Clutch Lever
52	TR-7105	Mechanism Plate - Lower
53	TR-7121	Rewind Arm
54	TR-7113	Solenoid Arm
55	TR-7201	Motor Pulley
56A	TR-7801	Motor, 105-120 V 50-60 Cycles
56B	TR-7802	Motor, 220 V 50-60 Cycles
57	TR-7157	Motor Fan
58A	TR-7803	Solenoid (105-120 V)
58B	TR-7804	Solenoid (220 V)
59	TR-7127	Slide Cam Connect Arm
60	TR-7612	Stop Key Interlock Arm Spring

PROPE
L. F. P

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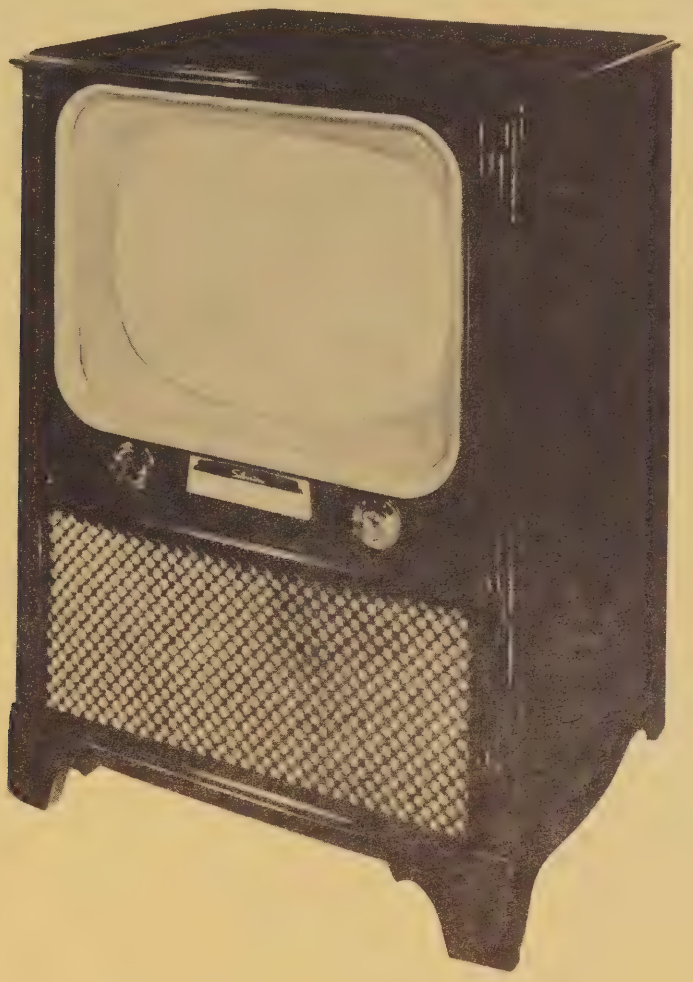

MODEL 2170-C

SILVERTONE
MODEL 2170-C (Ch. 100.209)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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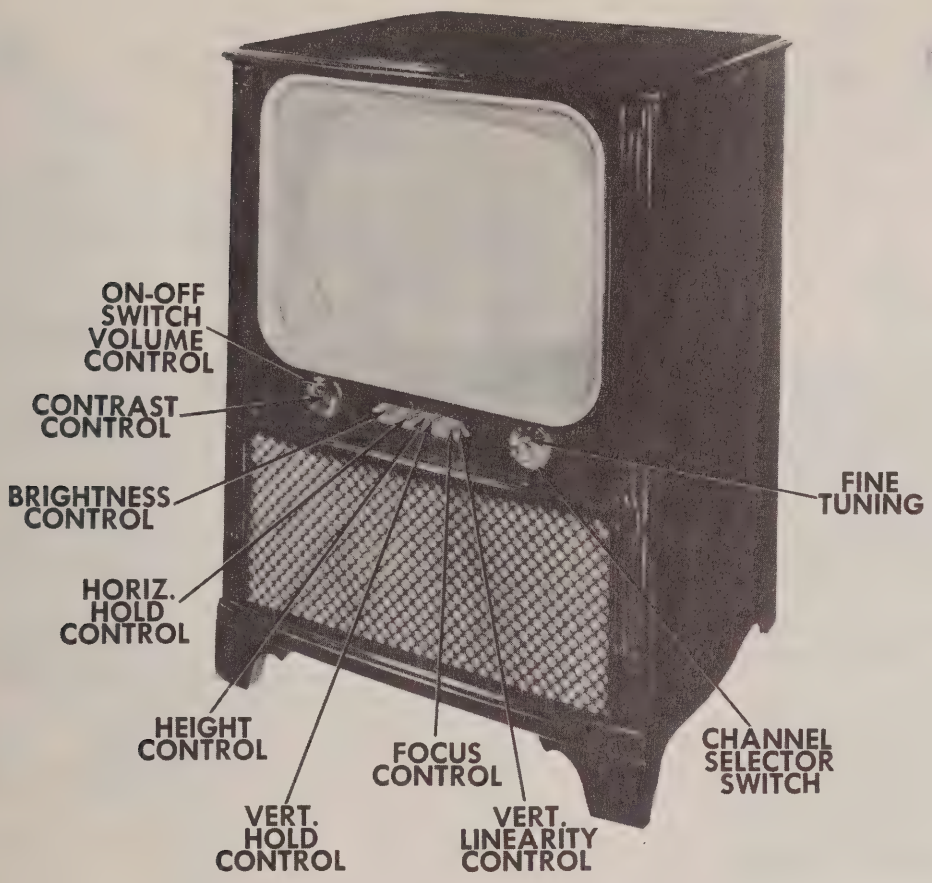
SILVERTONE
MODEL 2170-C (Ch. 100.209)



SILVERTONE
MODEL 2170-C (Ch. 100.209)

TRADE NAME	Silvertone Model 2170-C (Ch 100.209)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.86 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

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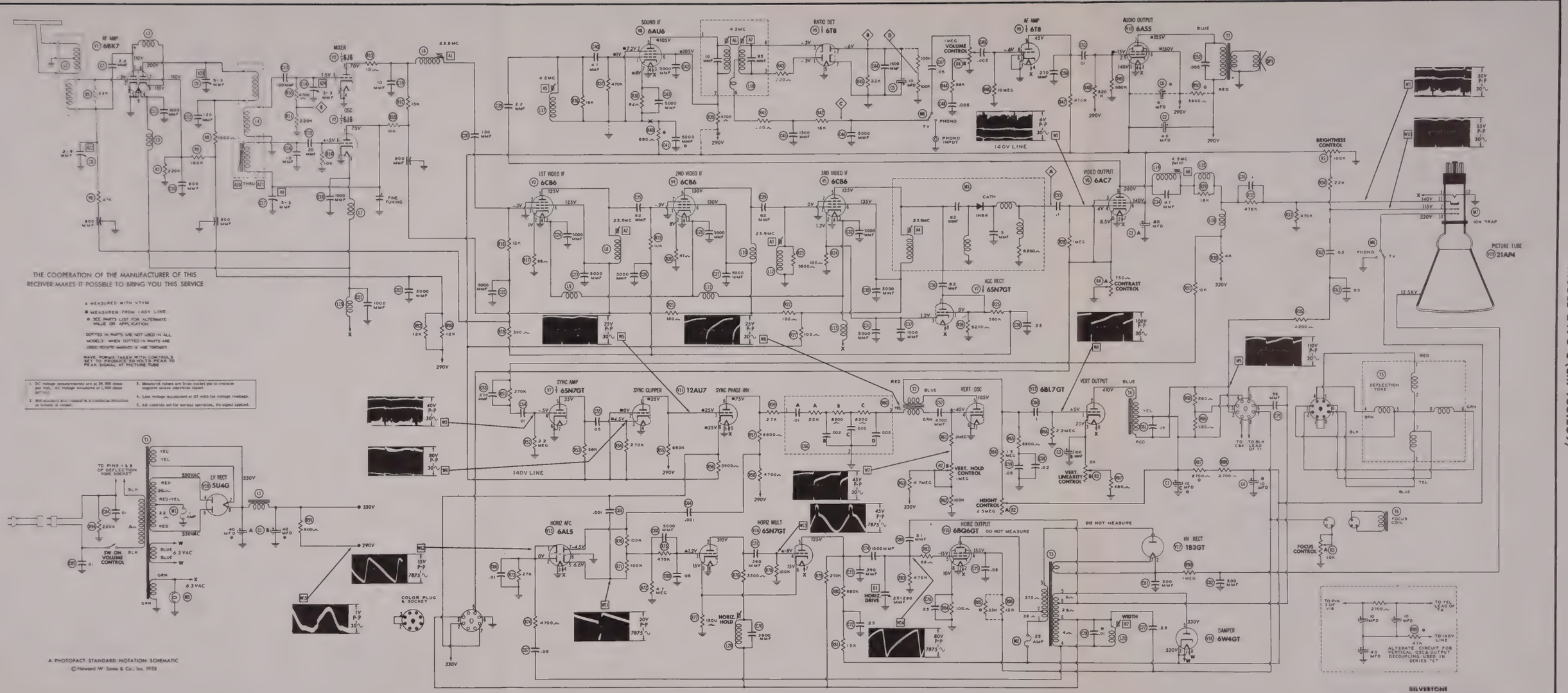
RF AMP V1 6BK7
MIXER V2 6J6
OSC V2 6J6
23.5 MC
SOUND IF V8 6AU6
4.5MC
RATIO DET V9 6T8
AF AMP V9 6T8
AUDIO OUTPUT V10 6AS5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V6 6AC7
AGC RECT V7 6SN7GT
SYNC AMP V7 6SN7GT
SYNC CLIPPER V11 12AU7
SYNC PHASE INV
VERT OSC
V12 6BL7GT
VERT OUTPUT
HORIZ AFC V13 6AL5
HORIZ MULT V14 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
DO NOT MEASURE
HV RECT V17 1B3GT
DAMPER V16 6W4GT
LV RECT V18 5U4G
PICTURE TUBE V19 21AP4
ION TRAP
BRIGHTNESS CONTROL
CONTRAST CONTROL
VOLUME CONTROL
PHONO INPUT
VERT. HOLD CONTROL
HEIGHT CONTROL
VERT LINEARITY CONTROL
FOCUS CONTROL
HORIZ DRIVE
HORIZ HOLD
WIDTH
FINE TUNING
COLOR PLUG & SOCKET
SW ON VOLUME CONTROL
140V LINE
330V
290V
TO PINS 1 & 8 OF DEFLECTION YOKE SOCKET
TO PIN 3 OF V18
TO YEL LEAD OF T4
TO 140V LINE
ALTERATE CIRCUIT FOR VERTICAL OSC.& OUTPUT DECOUPLING USED IN SERIES "C"
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A MEASURED WITH VTVM
MEASURED FROM 140V LINE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED RESISTOR MARKED W ARE TOPCOR
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. [illegible] as bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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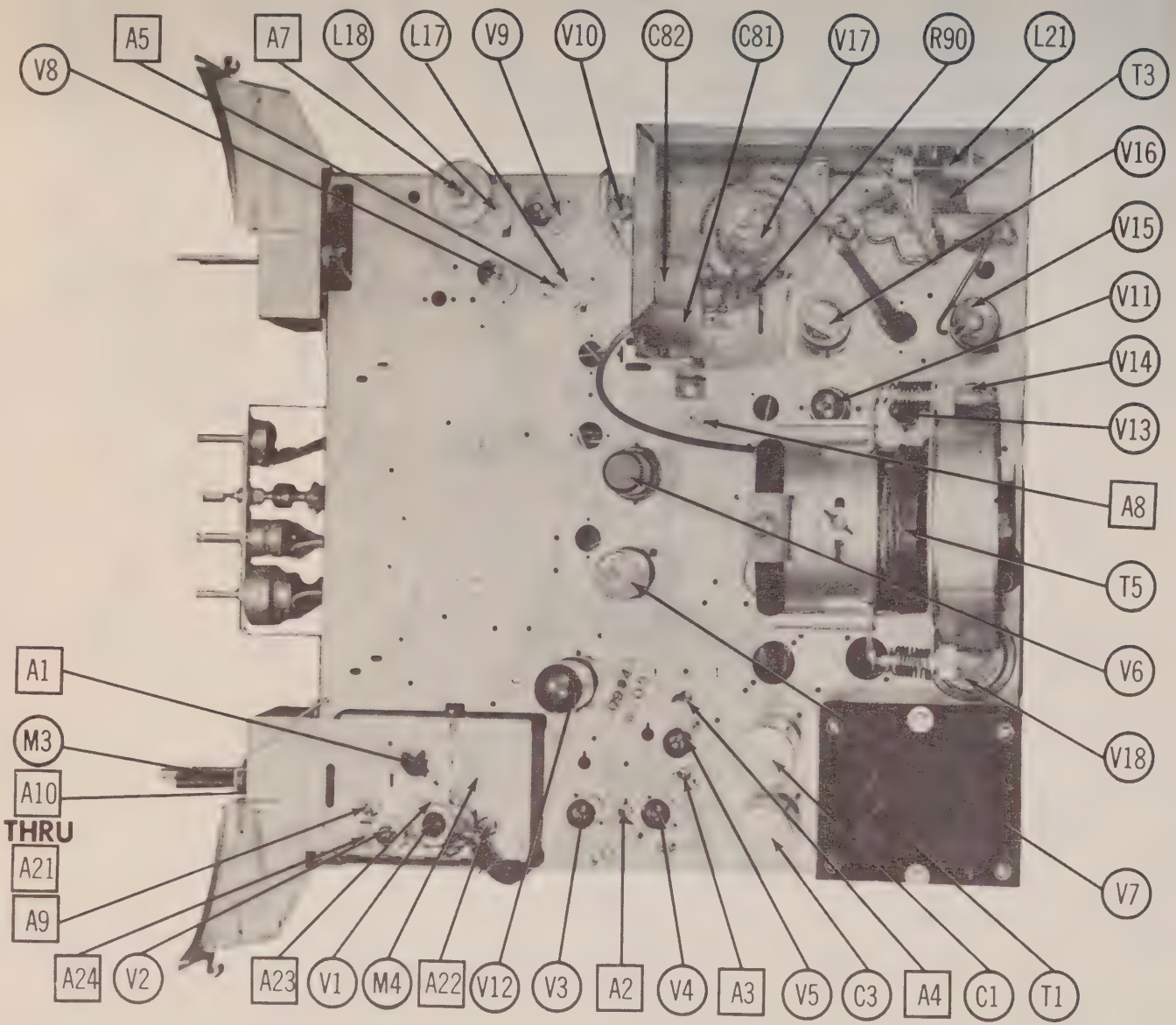
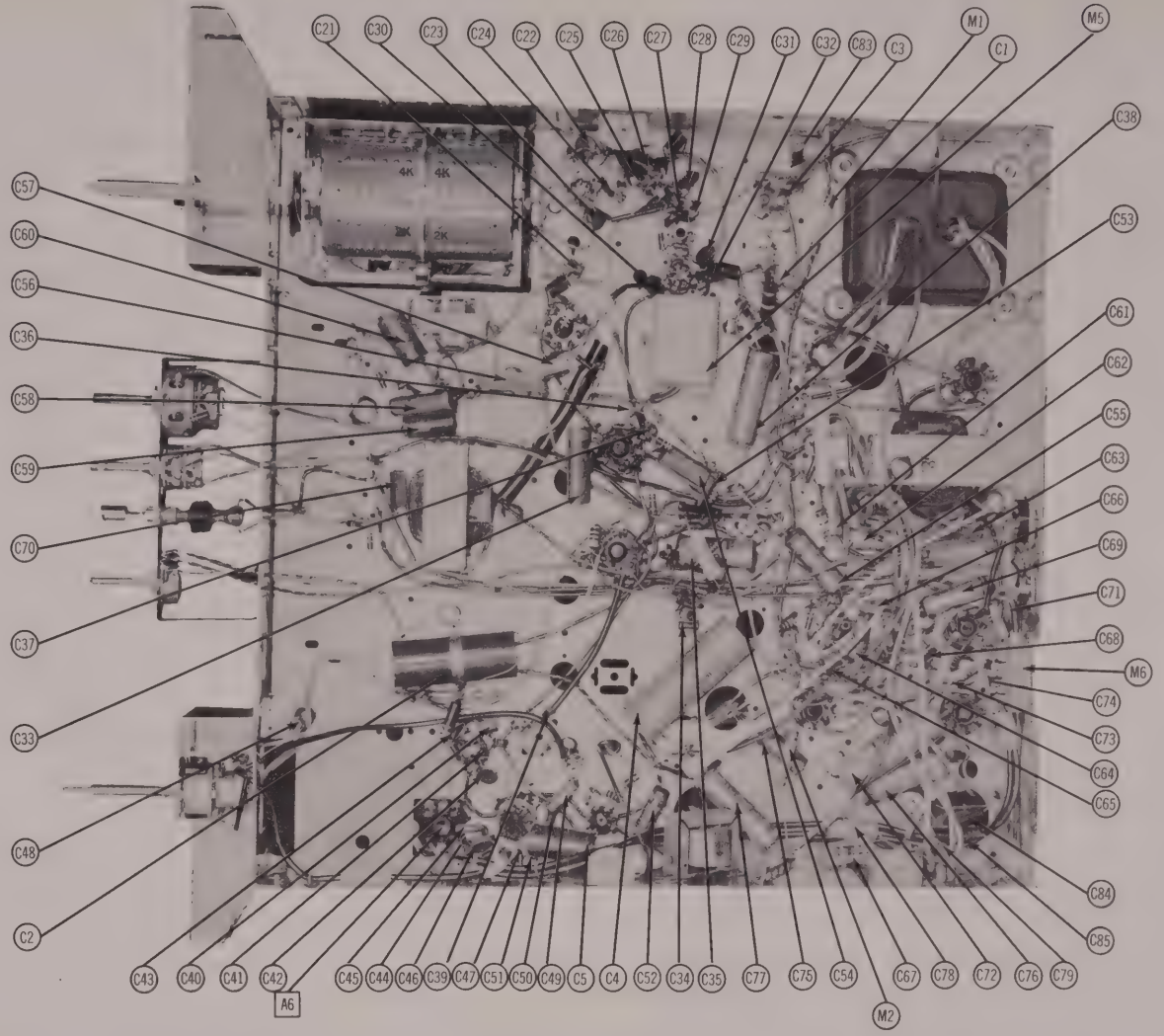


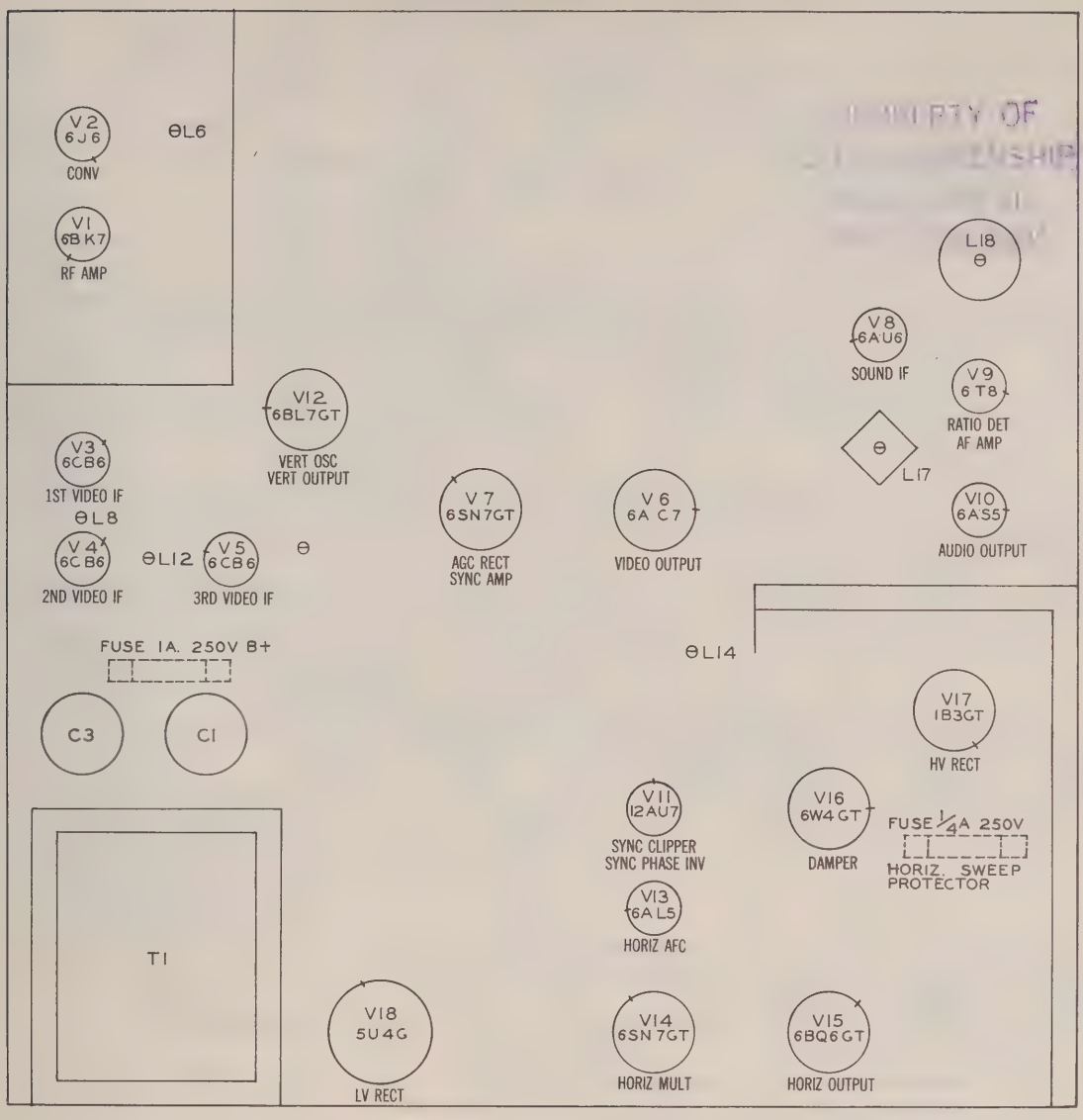
CHASSIS TOP VIEW

PROPERTY
D. F. BLANKEN
3924 MEADE S
DENVER, CO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V18 , Fuse (M1)

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6, V10
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V6, V19
Has Pic, No Sound - V8, V9, V10
Overloaded Picture - V7

SYNC FAILURE
No Vert. Sync - V11, V12
No Horiz. Sync - V11, V13, V14
No Vert. or Horiz. Sync - V7, V11

SWEEP FAILURE
No Raster, Has Sound - V14, V15, V16, V17, V19, Fuse (M2)
No Vertical Deflection - V12
Poor Vert. Linearity or Foldover - V12
Poor Horiz. Linearity or Foldover - V14, V15, V16
Narrow Picture - V14, V15, V16, V17, V18
Vert. Off Freq. - V11, V12
Horiz. Off Freq. - V11, V13, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal multivibrator tube, V14 from the socket.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, from its socket and replace with a 6J6 whichhas pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative terminal of a 3 volt battery to the ungrounded side of C38. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23.5MC (Unmod)	Any	DC probe to point (A) Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	25.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection .

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25MC (10MC Swp)	22.25MC 26.75MC	Any	Vert amp thru 47KΩ to point (A) Low side to chassis.		Check for response curve similar to fig 1. If necessary retouch A1 thru A4 for proper response.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B) Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"	"	DC probe to point (C) Common to point (D)	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C5. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
5.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A7	Reconnect capacitor C5. Adjust A7 so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru detector fig. 4 to pin 11 of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 47KΩ to point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in fig. 5. Video Marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (E). Low side to chassis.	A22, A23 A24	Adjust for response curve similar to fig. 6 with markers above 90%.
9.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve similar to fig. 6. If markers fall below 70% on any channel make slight compromise adjustments of A22, A23 and A24 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

DEALER STAMP
39-4 MEADE ST
DENVER, COLORADO

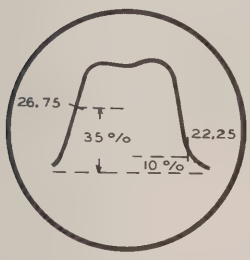


FIG. 1

FIG. 2

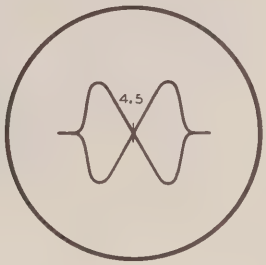


FIG. 3

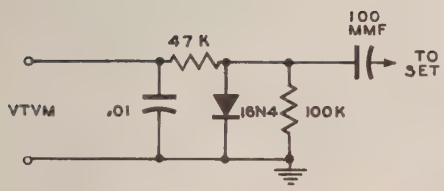


FIG. 4

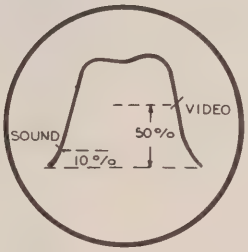


FIG. 5

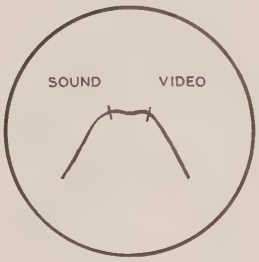
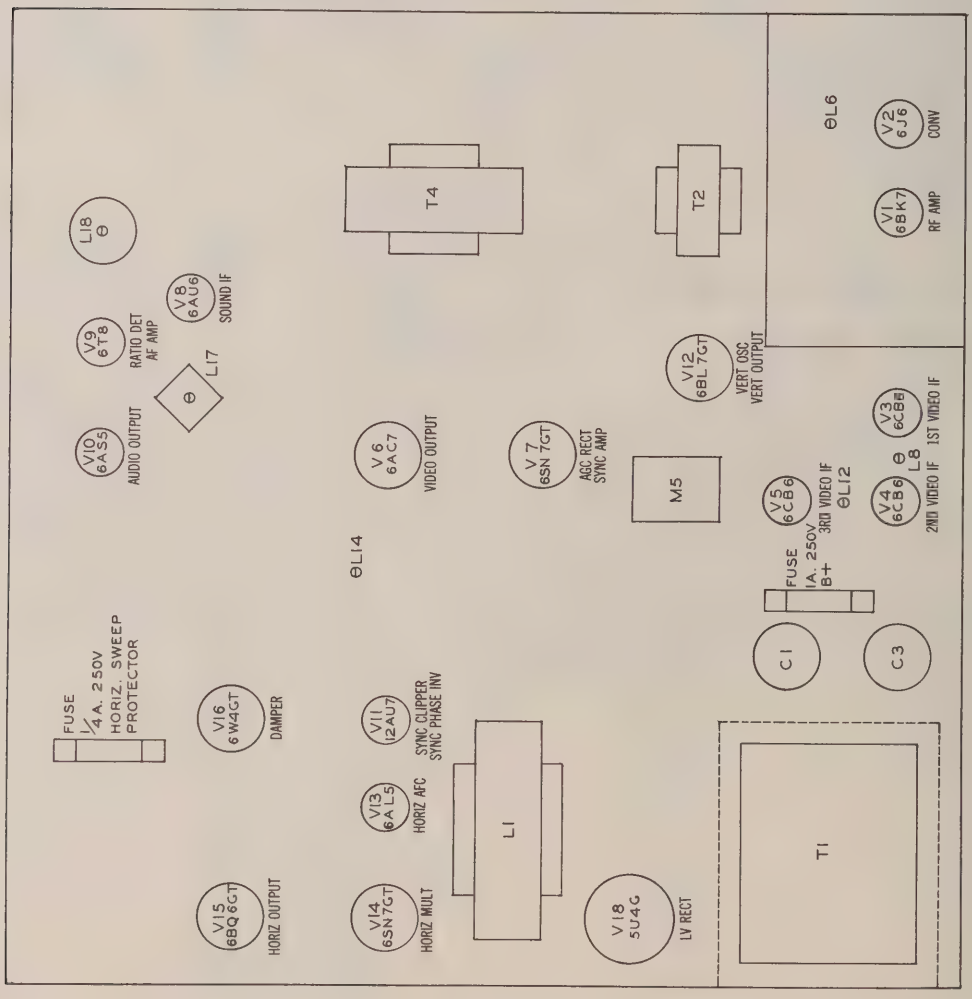


FIG. 6

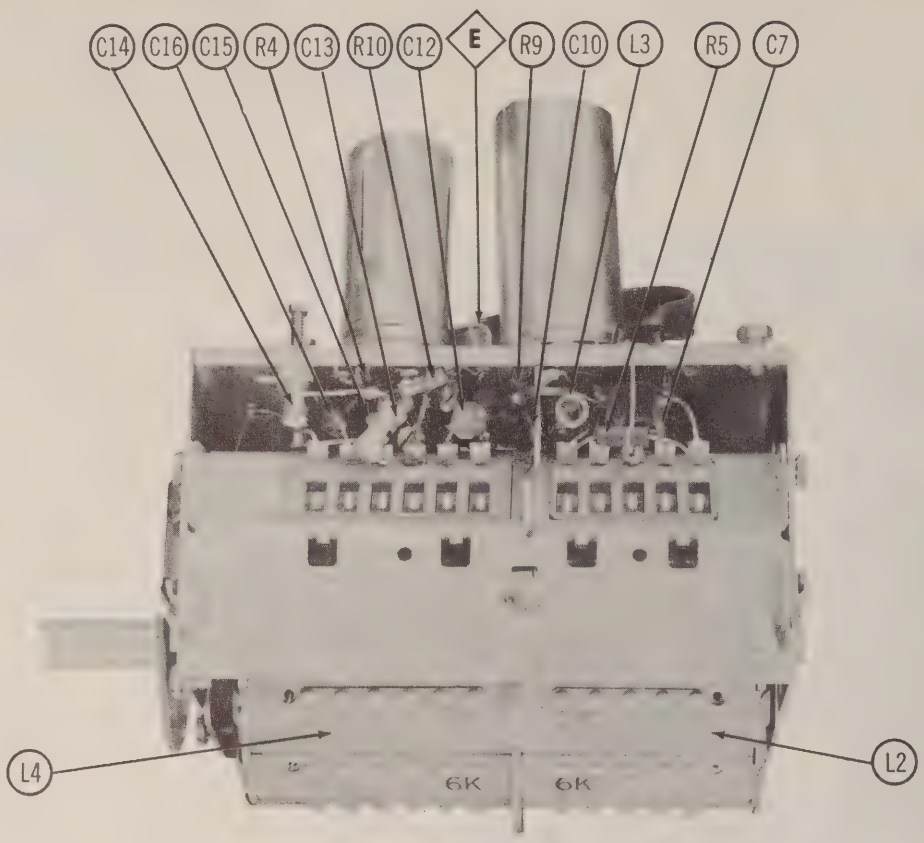
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	615KΩ	0Ω	.1Ω	0Ω	†7.7KΩ	†110KΩ	INF	0Ω
V 2	6J6	■10KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	580KΩ	68Ω	.1Ω	0Ω	■300Ω	■300Ω	0Ω		
V 4	6CB6	580KΩ	47Ω	.1Ω	0Ω	■200Ω	■200Ω	0Ω		
V 5	6CB6	.2Ω	100Ω	.1Ω	0Ω	■100Ω	■100Ω	0Ω		
V 6	6AC7	0Ω	0Ω	450Ω	1 Meg	450Ω	■0Ω	.1Ω	†4.1KΩ	
V 7	6SN7GT	8.2KΩ	8.2KΩ	100Ω	2.2Meg	■68KΩ	0Ω	0Ω	.1Ω	
V 8	6AU6	■470KΩ	■680Ω	.1Ω	0Ω	†5.4KΩ	†5.4KΩ	■762Ω		
V 9	6T8	INF	22KΩ	INF	.1Ω	0Ω	0Ω	0Ω	10Meg	■470KΩ
V 10	6AS5	60KΩ	400KΩ	.1Ω	0Ω	400KΩ	†673Ω	†1.1KΩ		
V 11	12AU7	†680KΩ	■0Ω	■270KΩ	0Ω	0Ω	†12KΩ	†680KΩ	■3.9KΩ	.1Ω
V 12	6BL7GT	2.2Meg	#6.2KΩ	1.3KΩ	2.5Meg	#2 Meg	0Ω	0Ω	.1Ω	
V 13	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.8 Meg	0Ω	4.8Meg		
V 14	6SN7GT	5.1Meg	†3.4KΩ	1.5KΩ	100KΩ	†220KΩ	1.5KΩ	.1Ω	0Ω	
V 15	6BQ6GT	INF	.1Ω	INF	†12KΩ	470KΩ	470KΩ	0Ω	100Ω	Top Cap #36Ω
V 16	6W4GT	INF	INF	110KΩ	INF	†76Ω	110KΩ	#0Ω	#.1Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #311Ω
V 18	5U4G	INF	14KΩ	INF	20Ω	.1Ω	22Ω	INF	14KΩ	
V 19	21AP4	.1Ω	60KΩ	Pin 10 #0Ω	Pin 11 230KΩ	Pin 12 0Ω				

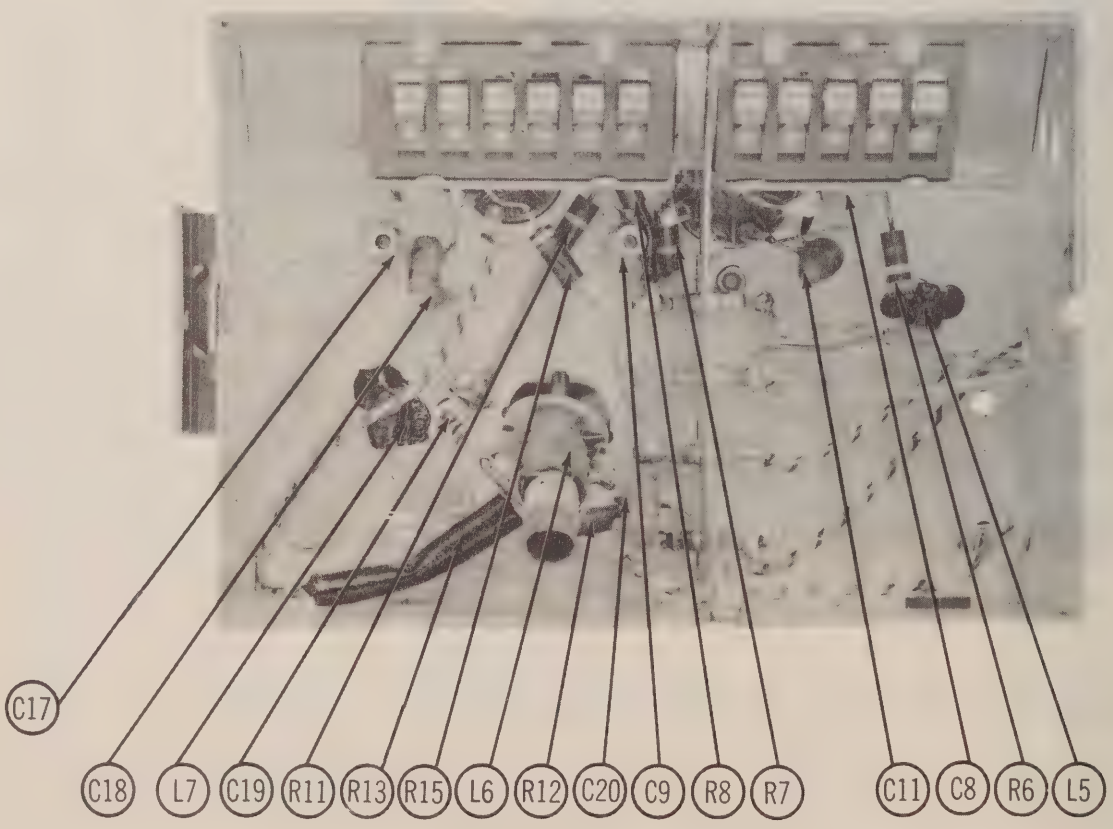
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 140 VDC LINE



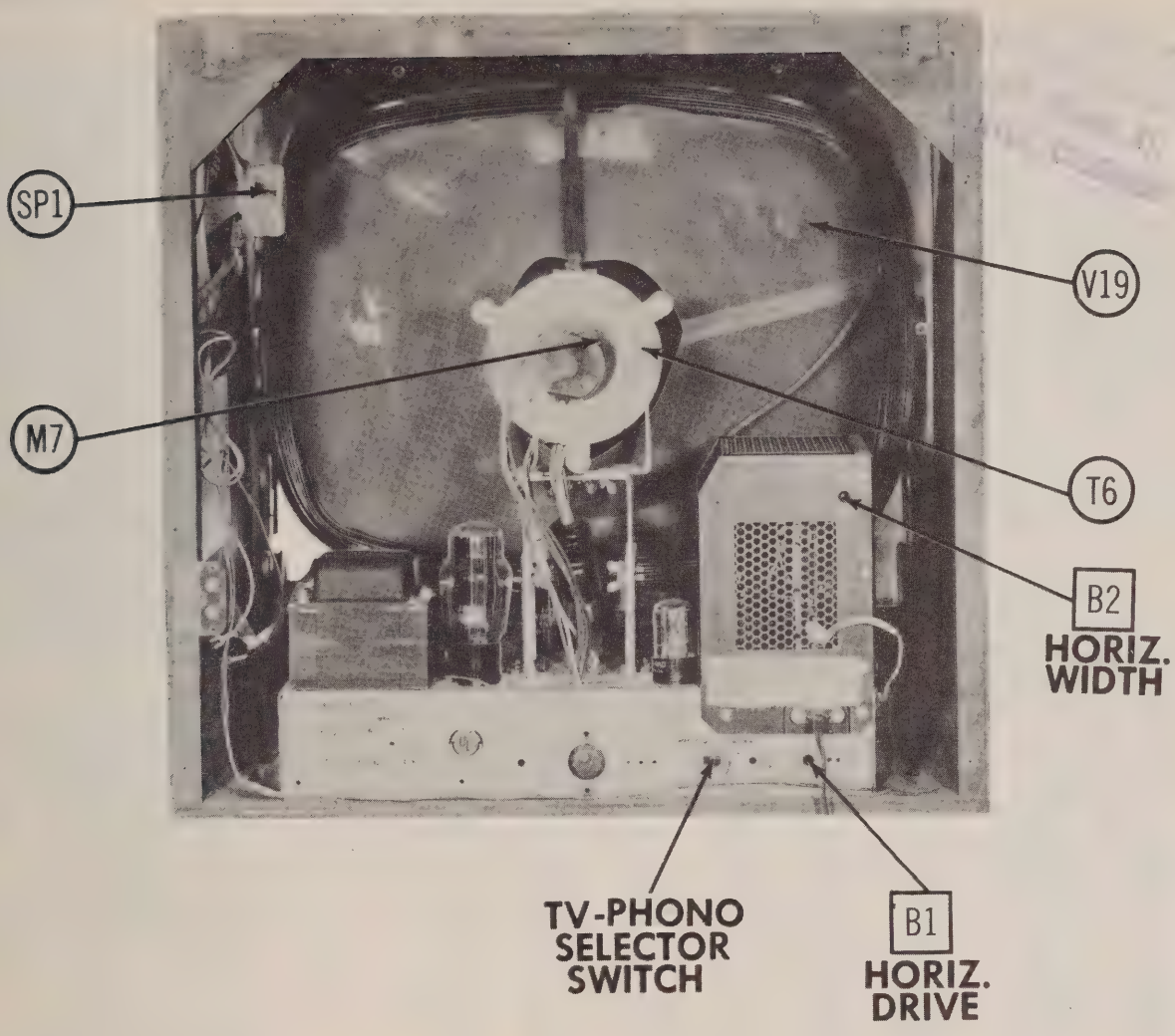
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B1) counter clockwise as far as possible without crowding or vertical white lines appearing in the picture.

Adjust the width slug (B2) until the picture is slightly wider than enough to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 7 wood screws. Remove rear cover.
3. Disconnect built-in antenna, speaker.
4. Remove 2 wood screws. Remove antenna bracket.
5. Remove 2 peaker nuts. Remove speaker.
6. Remove 5 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BK7	6BK7	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AC7	6AC7	8N	
V7	AGC Rectifier - Sync Amplifier	6SN7GT	6SN7GT	8BD	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det.-AF Amp	6T8	9E		
V10	Audio Output	6AS6	6AS6	7CV	
V11	Sync Clipper - Sync Phase Inv.	12AU7	12AU7	9A	
V12	Vert. Oscillator - Vert. Output	6BL7GT	6BL7GT	8BD	
V13	Horiz. AFC	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	8AM	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	2C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19	21AP4	21AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	⌀40	450	509001	AFH3-43		UPT44145		FP376.8	TVL-3785	Note1
B	⌀40	450								Note 1
C	⌀40	450								Note 1
C2	40	300	180095	PR8450/40		BR4035		TC78	TVA-1611	
C3A	⌀80	200	509002	AFH3-142		UPT10025		FP375	TVL-3722	
B	⌀100	50				V15				
C4	10	600	508680	PR8700/10		BRHV610		TC92	TVA-1955	Note 2
C5	10	150	505174	PR1510/12		BR1015		TC42	TVA-1406	
C6	4	200	520842	PR8250/*		BR425		TC50X	TVA-1501	Note 3
C7	2.2		513001		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C8	3-9		509064		829-10					
C9	.5-3		507968		829-3		CT565A			
C10	800			BPD-0008	DD-801	TM5T8	8U1-001	DC-521	5HK-D1	
C11	1000		513009	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	100		513439	SU20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C13	100		513440	SU100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C14	.5-3		507968		829-3		CT565A		5TCC-Q3	
C15	30		513441	SU20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C16	10		513446	SU0N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C17	.5-3		509063		829-3		CT565A			
C18	1000		513009	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C19	10		513444	SU10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C20	120		513029	SU120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C21	1000		513009	SU1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C22	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C23	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C24	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C25	82		513016	SU82			GP1K-820		5GA-Q82	
C26	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C27	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C28	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C29	82		513016	SU82			GP1K-820		5GA-Q82	
C30	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C31	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C32	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C33	.1	200	512033	PZ88-1	DF-104	PTZ2P1		PT401	2TM-P1	
C34	47		513438	SU47NP0	TCZ-47		NP0L-470	ZT-5447	5TCC-Q47	
C35	.1	400	512033	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C36	82		513016	SU82			GP1K-820		5GA-Q82	
C37	1000		513009	SU1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C38	.25	200	512027	P488-25		PJ2P25		PT4025	2TM-P25	
C39	2.2		513001		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C40	47		513002	SU47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C41	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	Note 4
C42	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C43	5000		1513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C44	1500		513009	SU1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C45	1500		513010	SU1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C46	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C47	.05	200	512027	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C48	.005	600	512007	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C49	.005	600	512007	P688-005	D6-502	PTE4D5	GP2-333-502	PT625	6TM-D5	
C50	270		513008	SI270	D6-270	SW9T3	GP2K-271	UC-5327	5GA-T27	
C51	.01	400	512031	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C52	.005	600	512007	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C53	270		513006	SI270	D6-271	SW5T3	GP2K-271	UC-5327	5GA-T27	
C54	.01	600	513013	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C55	.05	400	512029	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C56A	.01		P688-01		DD-103	PTE6S1	/821-01	PT611		
B	.002	} +508062	P688-002	} †PC-100	PTE6S2	} †/1405-01	PT622	} †+/5HK-S1	
C	.005		P688-005		PTE6D5		PT625	101C1	
D	.005		P688-005		PTE6D5		PT625		
C57	4700	1000		1464-005		DR3D5		MC3465	MS-25	
C58	.02	600	512019	P668-02	DF-203	PTE6S2		PT612	6TM-S2	
C59	.05	600	512308	P668-05	DF-503			PT615	6TM-S5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C60	.1	600	512037	P588-1	DF-104	PTE6P1		PT611	6TM-P1	
C61	.05	200	512027	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C62	.02	600	512019	P668-02	DF-203	PTE6S2		PT612	6TM-S2	
C63	.05	600	512031	P668-05	DF-503	PTE6S5		PT615	6TM-S5	
C64	.001	600	512001	P668-001	D6-102	PTE6D1	GP2L-102	PT631	6TM-D1	
C65	.001	600	512001	P668-001	D6-102	PTE4D1	GP2L-102	PT631	6TM-D1	
C66	.01	200	512009	P488-01	D6-103	PTE4S1	GP3-333-103	PT411	4TM-S1	
C67	.05	600	512031	P668-05	DF-503	PTE6S5		PT615	6TM-S5	
C68	5000		513013	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C69	.05	200	512027	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C70	3900	500	513540	1464-004		DR3D24		MC3464		
C71	390	500	512535	1469-0004		SR5T4		MC3243	MS-34	
C72	.25	600	512049	684-25		PTE6P25		PT6025	6TM-P25	
C73	390	500	512535	1469-0004		SR5T4		MC3243	MS-34	
C74	1000	500	513515	1468-001	D6-102	1W5D1	GP2L-102	MC355	1TM-D1	
C75	.05	600	513031	P668-05	DF-503	PTE6S5		PT615	6TM-S5	
C76	.25	200	512045	P488-25		PJ2P25		PT4025	2TM-P25	
C77	.25	200	512045	P488-25		PJ2P25		PT4025	2TM-P25	
C78	.01	600	512013	P668-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	Note 5
C79	56	1500	513027							
C80	5.1	1500	513026							
C81	500	20000	508688		HV20C	TV3-502	MM-C20TS	413-501	HV-20035	20DK-T5
C82	500	20000	508688		HV20C	TV3-502	MM-C20TS	413-501	HV-20035	20DK-T5
C83	5000		513013		BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5
C84	.01	400	512255		489ZGXY-01		PJ4S1		PT411	4TM-S1
C85	.01	400	512255		489ZGXY-01		PJ4S1		PT411	4TM-S1

Note 1. This unit used when letter "E" is not included in series designation. When letter "E" is included C1C becomes 40MFD and is relocated. (C1, 40-40-40MFD unit part # 520434) (See Note 2 and partial schematic)
Note 2. When letter "E" is included in series designation C4 becomes a dual unit 10MFD and 20MFD (Part #520841).
The additional section replaces C1C. (See Note 1 and partial schematic).
Note 3. This unit used when letter "D" is included in series designation.
Note 4. This unit is not used when letter "D" is included in series designation.
Note 5. This unit becomes .02MFD (Part #512019) when letter "A" is included in series designation.
* Items C56A, C56B, C56C, C56D, R60A, R60B, R60C are combined in one unit.
† Sub DD-103 in series with PC-100 input lead replaces original unit.
† Sub 821-01 in series with 1405-01 input lead replaces original unit.
† Sub 5HK-S1 in series with 101C1 input lead replaces original unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	1	509893	Q11-128	AG-69-8	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not req.	RS-3/16	AK-4	Not Req.	Attach to R1A
R2A	2.5Meg	1	508893	Q7-233 *	RTV-313		UF255L	Bright-panel
B	1Meg	1					UR16L	Vert hold-rear
R3A	10KΩ	4	509302		RTV-342			Focus-wire wound-panel
B	5KΩ	1						Vert linearity-rear
R4A	75Ω	2	520292	QJ-341 **			WF781	Contrast-wire wound-panel
B	1Meg	1					UR16-T25	Volume-taper ⑤ 200KΩ-rear
C	Switch						US-26	Attach to R4B

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-239 & P1-112 (Panel)
B11-137 & R1-115 (Brsg)
** CONCENTRIKIT EQUIVALENT-KIT K-3, BASE ELEMENTS & SHAFTS W17-105 & P3-131 (Panel)
B13-137X & R1-226 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R5	22KΩ	½	510180		
R6	47KΩ	½	510187		
R7	220KΩ	½	510179	BTS-220K	
R8	1000Ω	½	510137	BTS-1000	
R9	180KΩ	½	510177	BTS-180K	
R10	470KΩ	½	510148	BTS-470K	
R11	220KΩ	½	510179	BTS-220K	
R12	15KΩ	½	510156	BTS-15K	
R13	10Ω	½	510101		
R14	10KΩ	½	510154	BTS-10K	
R15	10KΩ	½	510154	BTS-10K	
R16	12KΩ-5%	½	510732		
R17	68Ω	½	510116		
R18	390Ω	½	510139	BTS-390	
R19	10KΩ	½	510154	BTS-1 Meg	
R20	47Ω	½	510112		
R21	100Ω	½	510119	BTS-100	
R22	100Ω	½	510119	BTS-100	
R23	5600Ω	½	510150	BTS-5600	
R24	100Ω	½	510119	BTS-100	
R25	560KΩ	½	510185	BTS-560K	
R26	8200Ω	½	510153	BTS-8200	
R27	100Ω	½	510119	BTS-100	
R28	1 Meg	½	510181	BTS-1 Meg	
R29	18KΩ-5%	½	510745	BTS-18K-5%	
R30	4000Ω	5	510753	1 3/4A-4000	
R31	10KΩ	½	510154	BTS-10K	
R32	470KΩ	½	510184	BTS-470K	
R33	470KΩ	½	510184	BTS-470K	
R34	22KΩ	½	510180	BTS-22K	
R35	2200Ω	½	510142	BTS-2200	
R36	18KΩ	½	510159		
R37	470KΩ	½	510184		
R38	82Ω	½	510117	BTS-82	
R39	4700Ω	1	510249	BTA-4700	
R40	680Ω	½	510134	BTS-680	Note 2
R41	220Ω	½	510124	BTS-220	
R42	18KΩ	½	510159	BTS-18K	
R43	220Ω	½	510124	BTS-220	
R44	68KΩ	½	510170	BTS-68K	
R45	22KΩ	½	510180	BTS-22K	
R46	10Meg	½	510197	BTS-10Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R47	470KΩ	½	510184	BTS-470K	
R48	220KΩ-5%	½	510747	BTS-220K-5%	
R49	680KΩ-5%	½	510748	BTS-680K-5%	
R50	5600Ω	½	510150	BTS-5600	Note 1
R51	270KΩ	½	510180	BTS-270K	
R52	2.2Meg	½	510195	BTS-2.2Meg	
R53	68KΩ	½	510169	BTS-68K	
R54	270KΩ	½	510180	BTS-270K	
R55	680KΩ	½	510187	BTS 680K	
R56	3900Ω-5%	½	510748	BTS-3900-5%	
R57	680Ω	½	510151	BTS-680	
R58	4700Ω-5%	½	510750	BTS-4700-5%	
R59	27KΩ	½	510162	BTS-27K	
R60A	22KΩ	}		BTS-22K	
B	8200Ω		+508062	BTS-8200	
C	8200Ω			BTS-8200	
R61	2 Meg-5%	½	510769	BTS-2Meg-5%	
R62	100KΩ	½	510798	BTS-100K	
R63	4.7Meg	½	510768	BTS-4.7Meg	
R64	1.5Meg-5%	½	510767	BTS-1.5Meg-5%	
R65	680Ω	½	510151	BTS-680	
R66	2.2Meg	½	510193	BTS-2.2Meg	
R67	68Ω	½	510134	BTS-680	
R68	560Ω	½	510132	BTS-560	
R69	560Ω	½	510132	BTS-560	
R70	100KΩ-5%	½	510751	BTS-100K-5%	
R71	100KΩ-5%	½	510751	BTS-100K-5%	
R72	4.7Meg	½	510195	BTS-4.7Meg	
R73	27KΩ	½	510163	BTS-27K	
R74	470KΩ	½	510248	BTA-4700	
R75	470KΩ	½	510184	BTS-470K	
R76	3300Ω	½	510145	BTS-3300	
R77	1500Ω	½	510139	BTS-1500	
R78	100KΩ	½	510173	BTS-100K	
R79	270KΩ	½	510180	BTS-270K	
R80	680KΩ	½	510187	BTS-680K	
R81	15KΩ	2	510357	BTS-15K	
R82	68Ω	½	510116		
R83	470KΩ	½	510184	BTS-470K	
R84	100Ω	1	510218	BTA-100	
R85	33KΩ	½	510263	BTS-33K	Note 3
R86	12KΩ	½	510758	1 3/4A-12K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R87	2700Ω	2	510344	BTB-2700	Note 4
R88	2700Ω	2	510344	BTB-2700	
R89	47KΩ	2	510186	BTB-47K	Note 5
R90	1 Meg	2	510390		
R91	600Ω	10	510741	BTA-600	
R92	12KΩ	2	510356	BTB-12K	
R93	12KΩ	2	510356	BTB-12K	
R94	220KΩ	1	510179	BTS-220K	

* Items R60A, R60B, R60C, C56A, C56B, C56C are combined in one unit.
Note 1. Used when letter "D" is included in series designation.
Note 2. Not used when letter "D" is included in series designation.
Note 3. Used only when letter "A" is incorporated in series designation.
Note 4. Used when letter "C" is incorporated in series designation.
Note 5. Used when letter "E" is incorporated in series designation.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ④ 1.86A	665VCT .350ADC	5VAC ② 3A	⑥ 3.3VAC ⑦ 8A BRC 4 ⑥ 3VAC ⑦ 1.12A	520487 509380 ①		P-3078	TP-356	R-39BC

① Power trans. used when letter A is used in model no.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No	MERIT PART No	CHICAGO PART No.	TRIAD PART No	NOTES
T2	153Ω	940Ω	508078	A-8125	A-3000 ①	TBO-1 ②	A-97X ①	Vert osc. trans. Horiz. output trans.
T3	310Ω Tap ⑤ 36Ω	48Tap ⑤ .4Ω, 3.2Ω	[redacted]	A-8130 ③	HVO-7 ③			
T4	800Ω Tap ⑤ 9Ω		509375	A-8123 ①	A-3037	TBO-5	A-102X	Vert output trans.
T5A	16Ω		115238	DY-8	MFD-70	TY-2	Y-12	Horiz. deflection coils
B	48Ω							Vert. deflection coils
T6	12,000Ω		162326					Focus coil

① Drill one new mtg. hole.
② Mount on top of chassis.
③ Use with WC-5.
④ Use with MWC-1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No	MERIT PART No	CHICAGO PART No.	TRIAD PART No	NOTES
T7	4.3KΩ	3Ω	450Ω	.9Ω	509378	A-3877	A-2930	RO-8-①	S-5X	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	2Ω	509398 508174 ①	ST-108 Mod. P6-X	6A15	① 6" speaker used in models 9209C and 9209D.

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT (VAC) (ma)	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	230A	73Ω	2.9HY	508341	C-2325	C-2921 ①	TR-3300 ①	C-25A

① Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MERIT PART No.	NOTES
L2	Ant Coil	0Ω	0Ω	520502		Channel 2
L3	RF Choke	0Ω		520514		
L4	RF, Mixer Grid & Osc Coil	0Ω		520522		Channel 2
L5	Fil. Choke	0Ω		520518		
L6	1st Video IF	.8Ω		520501	TV-112	Includes slug, part #509062
L7	Fil Choke	0Ω		520520		
L8	2nd Video IF	.2Ω		507343	TV-103	Less slug, part #507357
L9	Fil Choke	0Ω		507584		
L10	RF Choke	2.4Ω		507367		
L11	Fil Choke	0Ω		507584		
L12	3rd Video IF	.2Ω		507343	TV-102	Less slug, part #507357
L13	Fil Choke	0Ω		507584		
L14	4.5MC Trap	1.8Ω		[redacted]	TV-151	Includes slug & cond. slug part # 507357
L15	Series Peaking Coil Shunt	12Ω		[redacted]	TV-185	
L16	Peaking Coil	15Ω		509342	TV-188	
L17	Sound IF	1.6Ω		509378		
L18	Ratio Det	4Ω	1Ω CT	509706	TV-110 *	Tertiary .3Ω
L19	Fil Choke	0Ω		507584		
L20	Horiz. Osc	85Ω		508967	TV-163	Includes slug, part #508963
L21	Width Coil	1.4Ω		508361	MWC-2	Includes slug, part #507429

* Drill one new mtg. hole.

DENVER, 2021

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

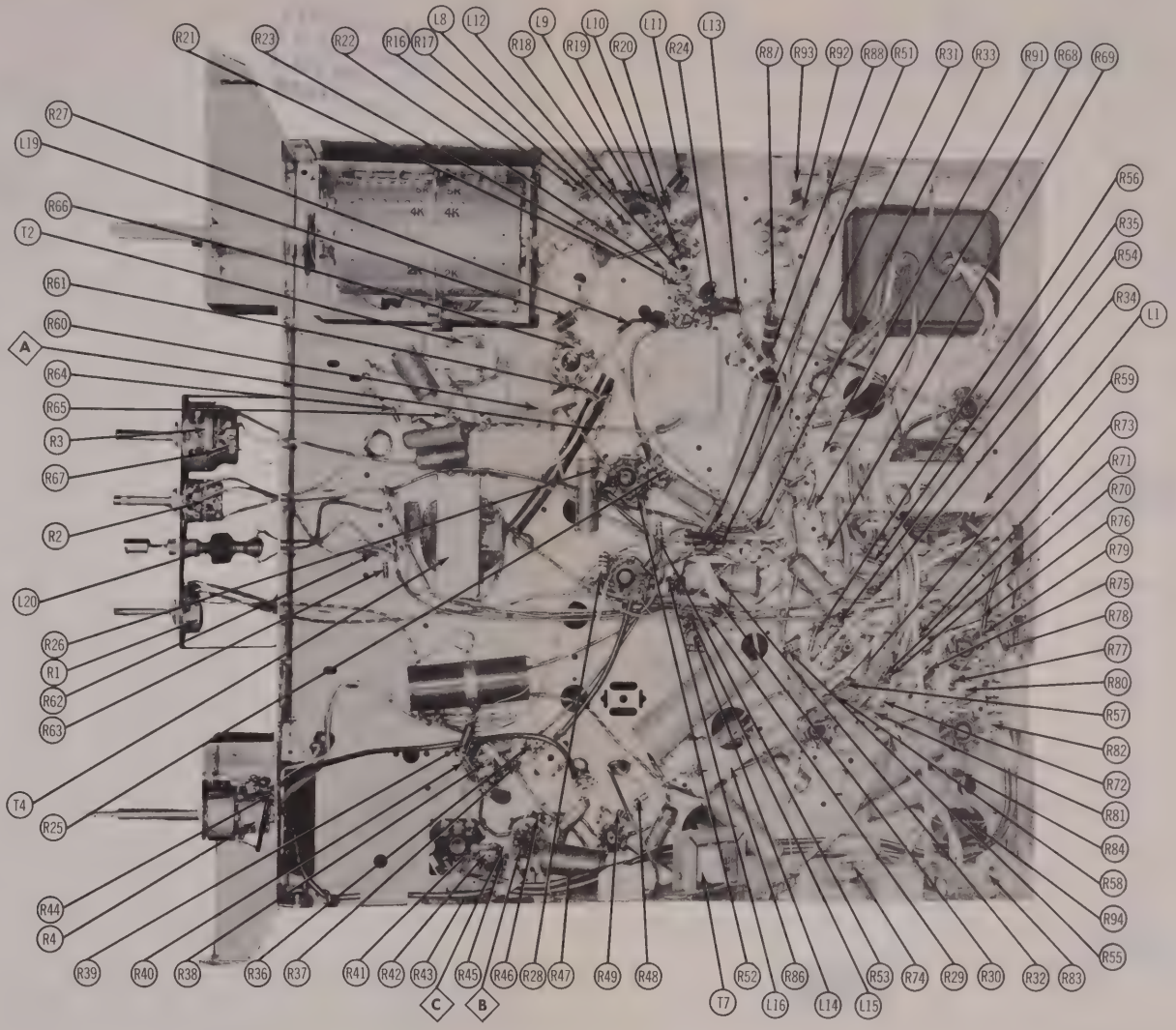
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SILVERTONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3A9 (P/T)	1A 250V	509517		318001		GJV-1A	
M2	GJV	1/4A 250V	508063		318.250 (3AG P/T)		GJV-1/4A	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SILVERTONE PART No.		
M3	Bayonet	6-8	.15	Brown	118 921		Type #47

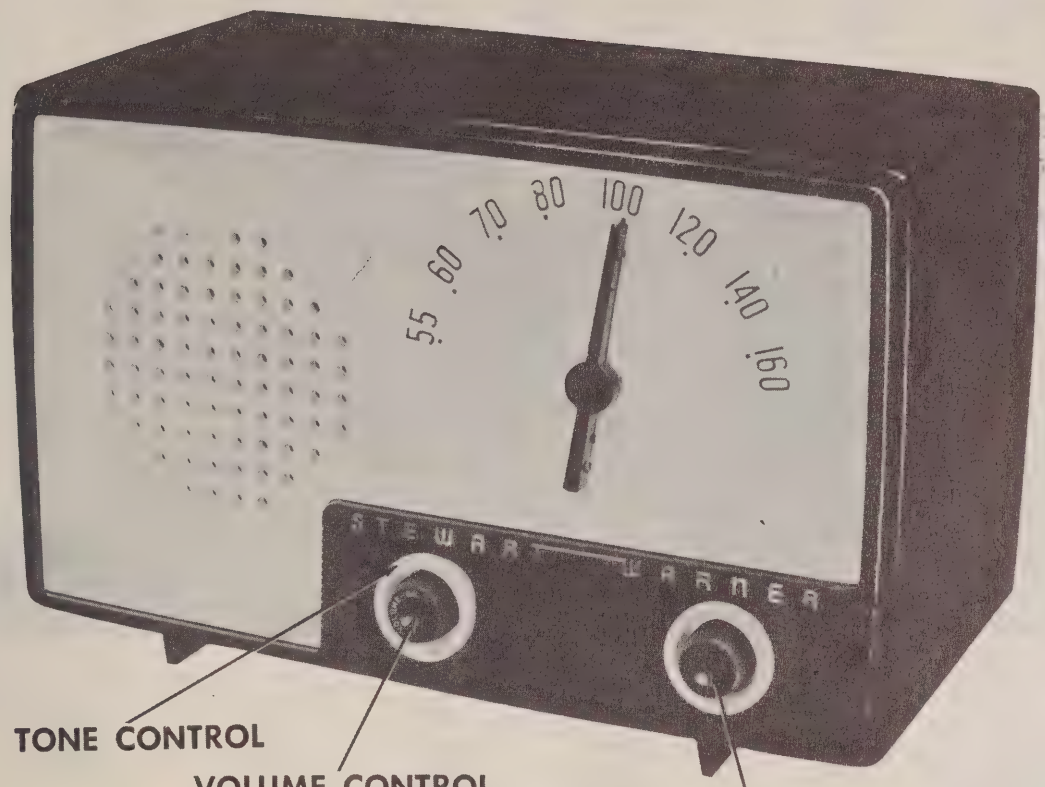
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	RF Tuner	520450	Complete with tubes
M5	4th. Video IF Coil	509613	Less Slug
	Capacitor	513016	82MMF
	RF Choke	507367	
	Crystal	509386	1N64
	Capacitor	513432	5MMF
	Peaking Coil	509340	
	Peaking Coil	509342	
	Resistor	510153	8.2KΩ
			Video Det. Assy.
M6	Switch	520563	TV-Phono
M7	Ion Trap	509688	
B1	Trimmer	520127	Horiz. Drive (25-280MMF)
	Ant. Coil	520503	Channel #3 (Coded 3K)
	Ant. Coil	520504	Channel #4 (Coded 4K)
	Ant. Coil	520505	Channel #5 (Coded 5K)
	Ant. Coil	520506	Channel #6 (Coded 6K)
	Ant. Coil	520507	Channel #7 (Coded 7K)
	Ant. Coil	520508	Channel #8 (Coded 8K)
	Ant. Coil	520509	Channel #9 (Coded 9K)
	Ant. Coil	520510	Channel #10 (Coded 10K)
	Ant. Coil	520511	Channel #11 (Coded 11K)
	Ant. Coil	520512	Channel #12 (Coded 12K)
	Ant. Coil	520513	Channel #13 (Coded 13K)
	RF, Mixer Grid & Osc. Coil	520523	Channel #3 (Coded 3K)
	RF, Mixer Grid & Osc. Coil	520524	Channel #4 (Coded 4K)
	RF, Mixer Grid & Osc. Coil	520525	Channel #5 (Coded 5K)
	RF, Mixer Grid & Osc. Coil	520526	Channel #6 (Coded 6K)
	RF, Mixer Grid & Osc. Coil	520527	Channel #7 (Coded 7K)
	RF, Mixer Grid & Osc. Coil	520528	Channel #8 (Coded 8K)
	RF, Mixer Grid & Osc. Coil	520529	Channel #9 (Coded 9K)
	RF, Mixer Grid & Osc. Coil	520530	Channel #10 (Coded 10K)
	RF, Mixer Grid & Osc. Coil	520531	Channel #11 (Coded 11K)
	RF, Mixer Grid & Osc. Coil	520532	Channel #12 (Coded 12K)
	RF, Mixer Grid & Osc. Coil	520533	Channel #13 (Coded 13K)
	Knob	520632-A	Channel Selector
	Knob	520634-A	Fine Tuning
	Knob	520633-A	Off/On Volume
	Knob	520635-A	Contrast
	Mask	520436	
	Safety Glass	520435	
	Name Plate	520455	Less Hinges & Springs
	Back Cover	115225	
	Cabinet	520630-A	Mahogany



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

STEWART-WARNER
MODELS 9165-A, -B



STEWART-WARNER
MODELS 9165-A, -B

TRADE NAME Stewart-Warner Model 9165-A, 9165-B
MANUFACTURER Stewart-Warner Electric Div. of Stewart-Warner Corp., 1300 N. Kostner Ave., Chicago 15, Ill.
TYPE SET AC/DC Operated AM Superheterodyne Receiver
TUBES (Six) Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det.-AVC-AF Amp., 35C5 Audio Output, 35W4 Rectifier

POWER SUPPLY 110-120 Volts AC/DC RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 540-1620

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator lug, middle section of tuning gang. Low side to B-.	455 KC (400∿Mod)	Any point of non-interference	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	200MMF	High side to external antenna connection. Low side to B-.	1600 KC	1600 KC	"	A5	Adjust for maximum output. If range is insufficient adjust trimmer at opposite end of capacitor section.
3.	"	"	1500 KC	Tune to 1500 KC signal	"	A6, A7	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

STEWART-WARNER
MODEL 9165-A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amplifier	12BA6	12BA6	7BK	
V4	Det.-AVC AF Amp	12AT6	12AT6	7BT	
V5	Audio Output	35C5	35C5	7CV	
V6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: C*P.	RATING: VOLT	REPLACEMENT DATA: Stewart-Warner PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	150	508147	PRS150/30-20		EDL3315A		2N513	TVA-2434	Red
B	20	150								Blue
C2	15		513405	SII5NP0	TCZ-15		NP0K-150		5TCC-Q15	
C3	.02	400	512016	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C4	100	500	512503	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C5	.02	400	512016	P488-02	DF-203	PTE4S5		PT412	4TM-S2	
C6	100	500	512503	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C7	100	500	512503	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C8	.002	600	512002	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C9	.002	600	512002	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C10A	5000									
B	250		♦505858		♦PC-70		♦1406-01		♦104C4	
C										
C11	.005	600	512006	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C12	.05	600	512030	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C13	.15	400	512040	P488-15		PTE4P15		TP417	4TM-P15	

♦ Items C10A, C10B, C10C, R9A, R9B are combined in one unit.
When replacing items separately C10B and C10C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	52 0390	QJ-390R *			UF16L	Tone-Panel
B	1Meg	½					UR16A	Volume - Rear
C	Switch						US-26	Attach to R1B

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-137 & P1-123 (Panel) B13-137 & R2-206 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	NOTES
R2	220Ω	½	510125	BTS-220	
R3	470KΩ	½	510185	BTS-470K	
R4	22KΩ	½	510165	BTS-22K	
R5	1Meg	½	510191	BTS-1Meg	
R6	150Ω	½	510121	BTS-150	
R7	33KΩ	½	510164	BTS-33K	
R8	10Meg	½	510197	BTS-10Meg	

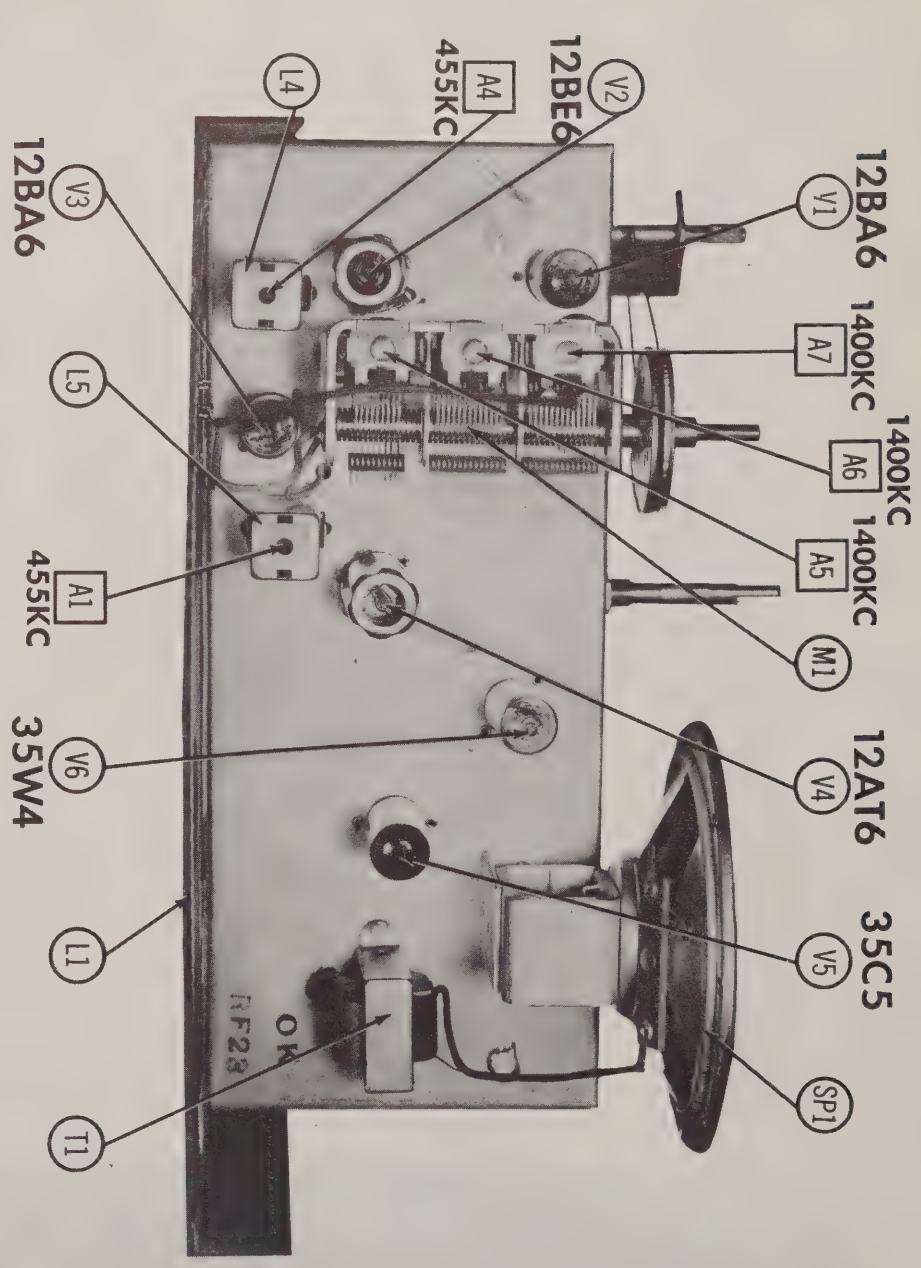
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stewart-Warner PART No.	IRC PART No.	NOTES
R9A	500KΩ	½	♦505858		
B	500KΩ	½			
R10	150Ω	½	510121	BTS-150	
R11	1500Ω	1	510240	BTA-1500	
R12	33Ω	1	510210		
R13	33Ω	1	510210		
R14	220KΩ	½	510179	BTS-220K	

♦Items R9A, R9B, C10A, C10B, C10C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	1.7KΩ	3.6Ω	245Ω tap ⓐ 11Ω	.6Ω	508146	A-3330 ①	A-3031 ①	RO-3 ①	S-7X ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Stewart-Warner PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.6Ω	508699	ST-105 Mod. P5-X	5A07	

COILS (RF-IF)

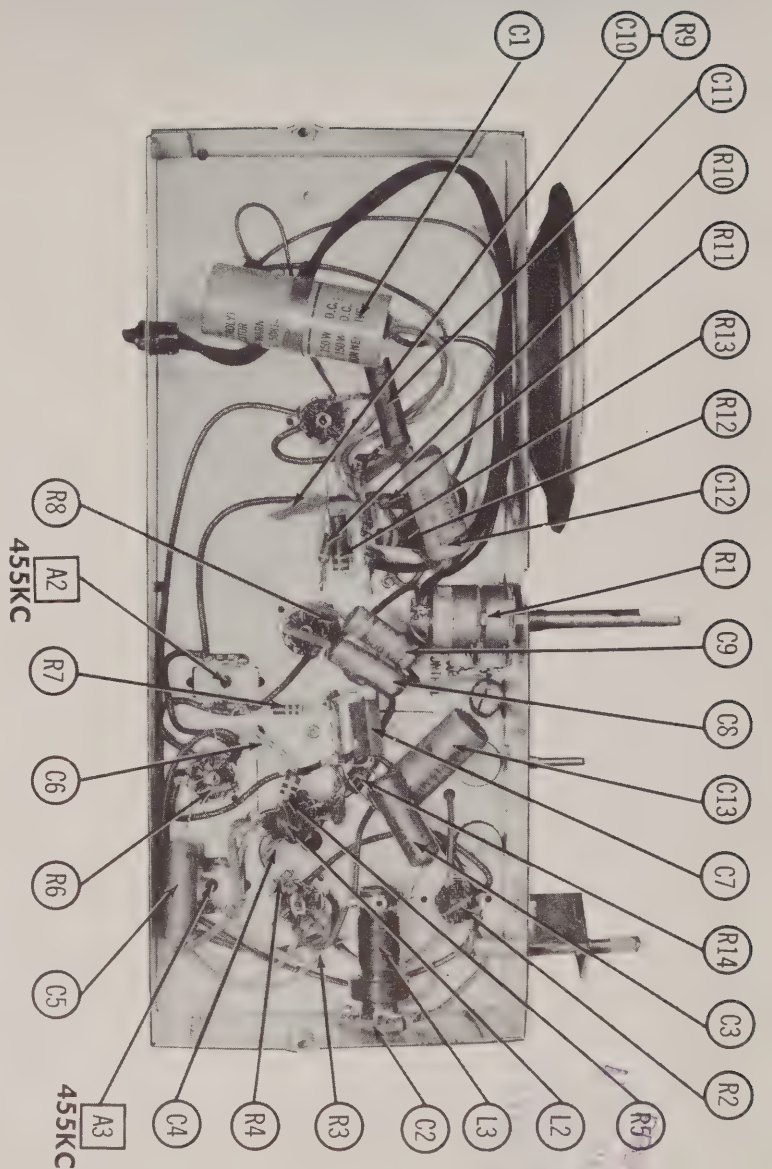
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Stewart-Warner PART No.	MERIT PART No.	
L1	Loop Ant.	0Ω	3.2Ω	508740		
L2	RF Coil	110Ω	5.5Ω	508692		
L3	Osc. Coil	.3Ω	3.2Ω	506094		
L4	Input IF	22Ω	22Ω	505867	BC-352	
L5	Output IF	22Ω	22Ω	505867	BC-353	

MISCELLANEOUS

ITEM No.	PART NAME	Stewart-Warner PART No.	NOTES
MP	Tuning Capacitor	520388	38-445MMF, 38-445MMF, 33-190MMF (Includes Drum)
	Cabinet	520391	Black & Yellow, Model 9165-A (Complete)
	Cabinet	520392	Rust & Tan , Model 9165-B (Complete)
	Cabinet Body	520383-A	Black, Model 9165-A
	Cabinet Body	520383-B	Rust, Model 9165-B
	Cabinet Front	520382-A	Black & Yellow, Model 9165-A
	Cabinet Front	520382-B	Rust & Tan, Model 9165-B
	Cabinet Back	508244	
	Knob	520387-A	Tone, Model 9165-A
	Knob	520387-B	Tone, Model 9165-B
	Knob	520385-A	Tuning, Model 9165-A
	Knob	520385-B	Tuning, Model 9165-B
	Knob	520386-A	Off/On Volume, Model 9165-A
	Knob	520386-B	Off/On Volume, Model 9165-B
	Pointer	520384-A	Black, Model 9165-A
	Pointer	520384-B	Rust, Model 9165-B
	Tuning Shaft	520389	

DIAL CORD DRIVE

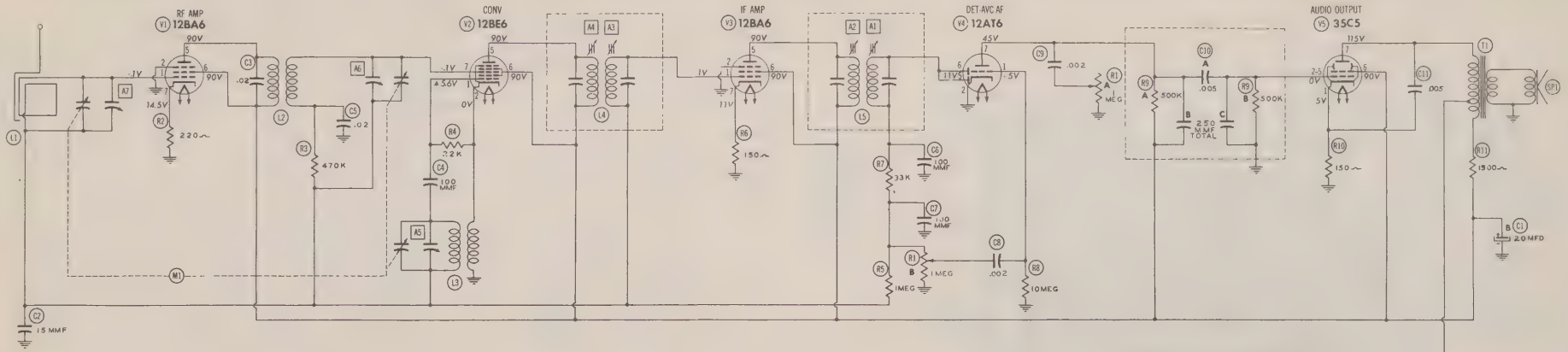
CHASSIS—BOTTOM VIEW



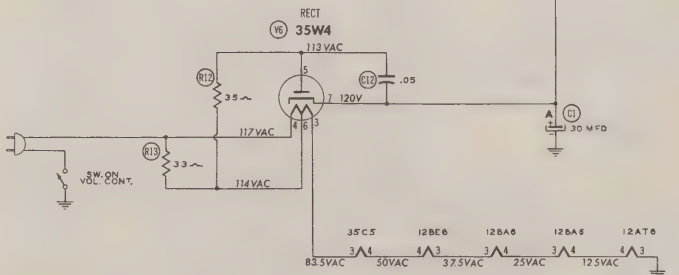
SET 193 FOLDER 11

STEWART-WARNER MODEL 9165-A

STEWART-WARNER MODEL 9165-A



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	2Meg	0Ω	36Ω	24Ω	†1.5KΩ	†1.5KΩ	220Ω
V 2	12BE6	22KΩ	.3Ω	36Ω	48Ω	†1.5KΩ	†1.5KΩ	2.5Meg
V 3	12BA6	2Meg	0Ω	24Ω	12Ω	†1.5KΩ	†1.5KΩ	150Ω
V 4	12AT6	10Meg	0Ω	0Ω	12Ω	1Meg	1Meg	†500KΩ
V 5	35C5	150Ω	500KΩ	82Ω	48Ω	500KΩ	†1.5KΩ	†234Ω
V 6	35W4	†11Ω	INF	82Ω	116Ω	142Ω	109Ω	1.4Meg

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V6.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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193-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)

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DENVER, COLORADO

MODEL H-708T20

WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)

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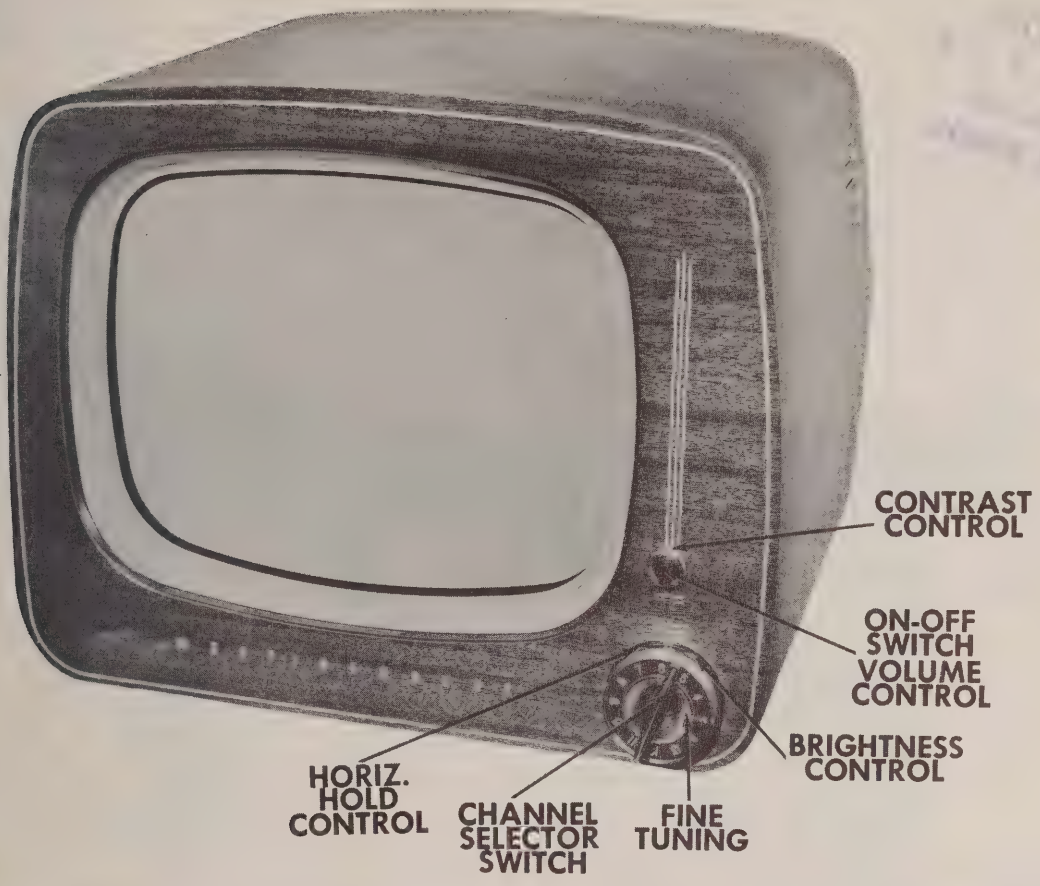
DATE 2-53 SET 193 FOLDER 12

PHOTOFACT* Folder
*TRADE MARK

WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11) H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)



Westinghouse Model H-708T20

TRADE NAME	Westinghouse Models H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)
MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Sunbury, Pa.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.92 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)

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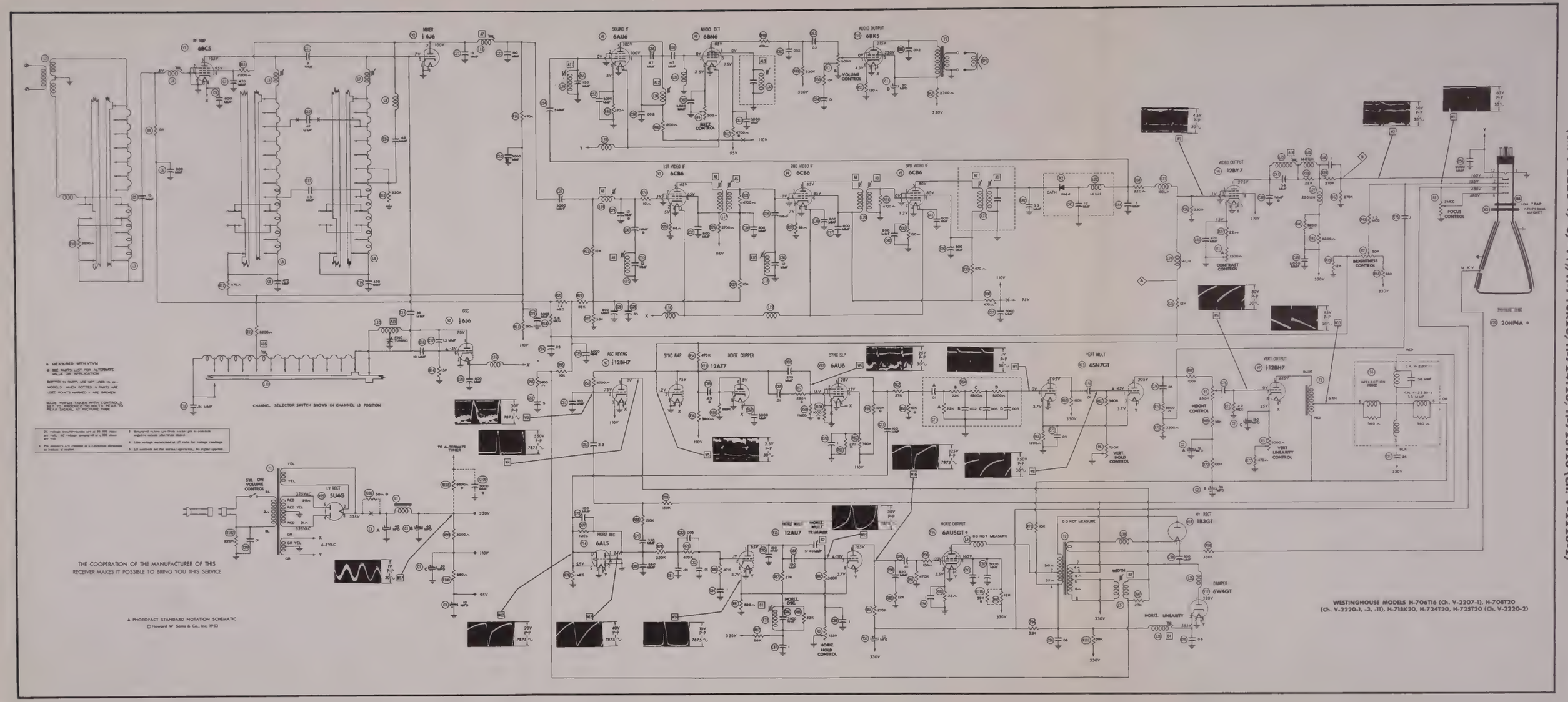
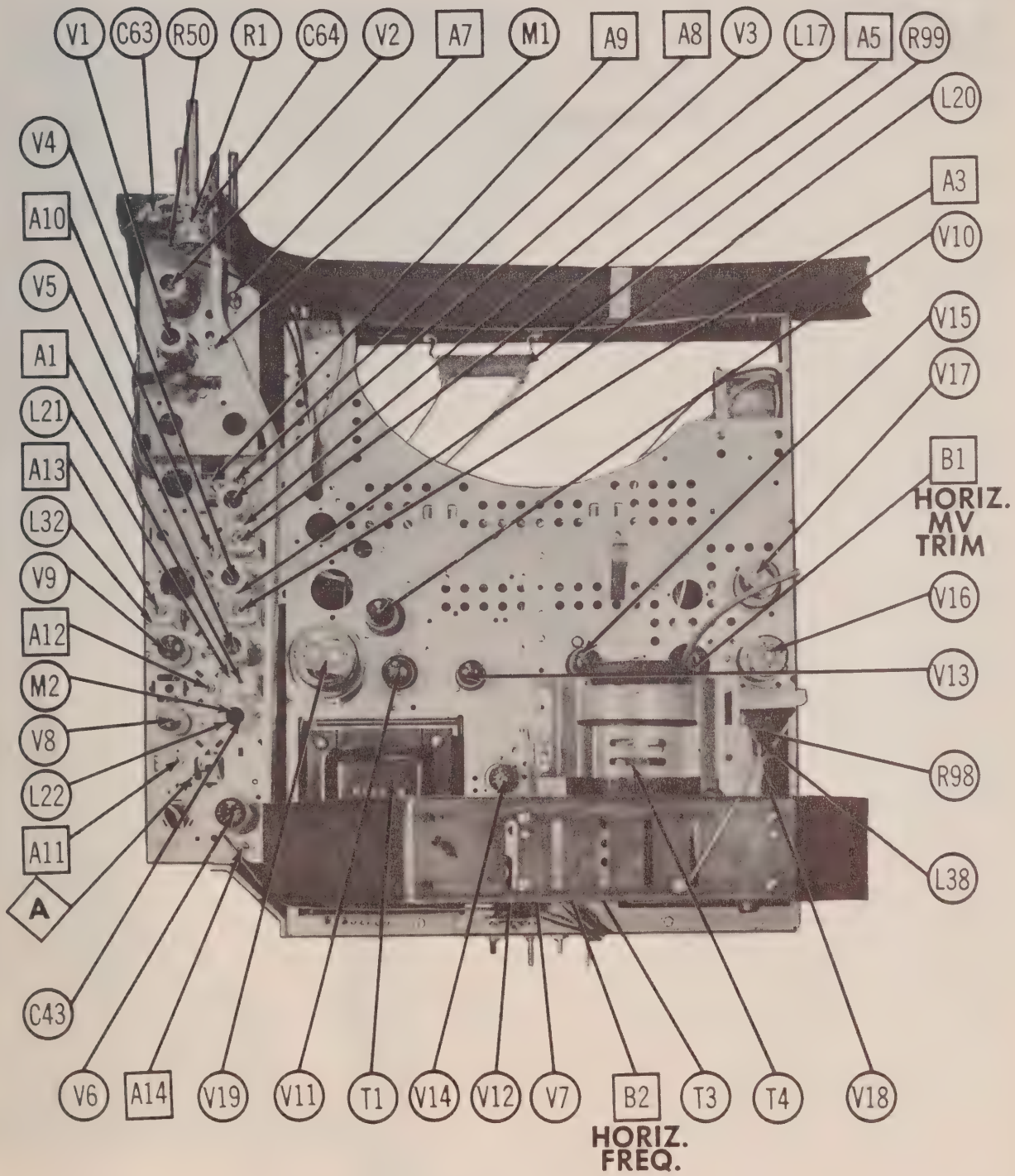
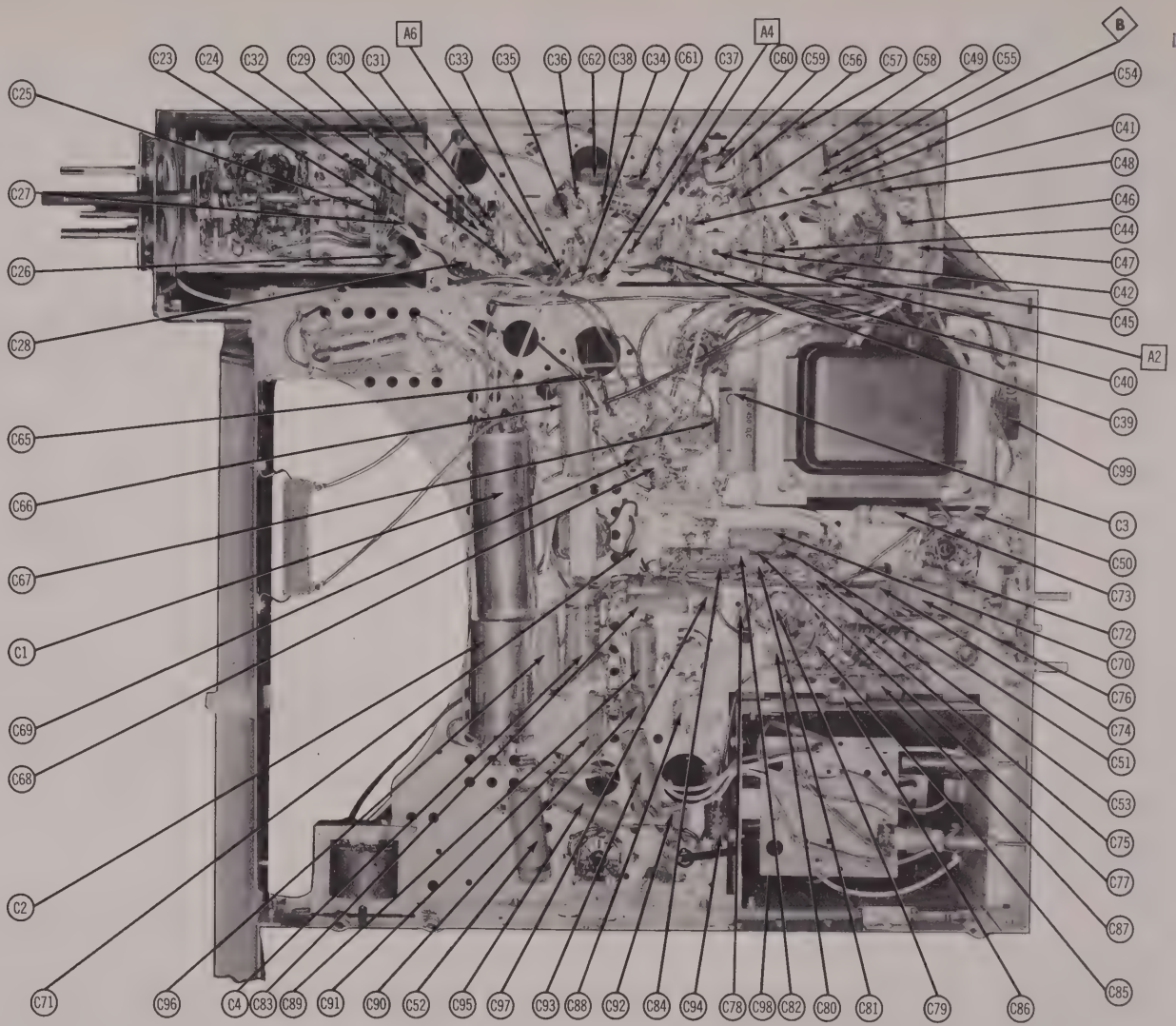


WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20
(Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)



CHASSIS TOP VIEW

PROPERTY OF
L. F. BLANKENSHIP
[illegible] MEADE ST
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART

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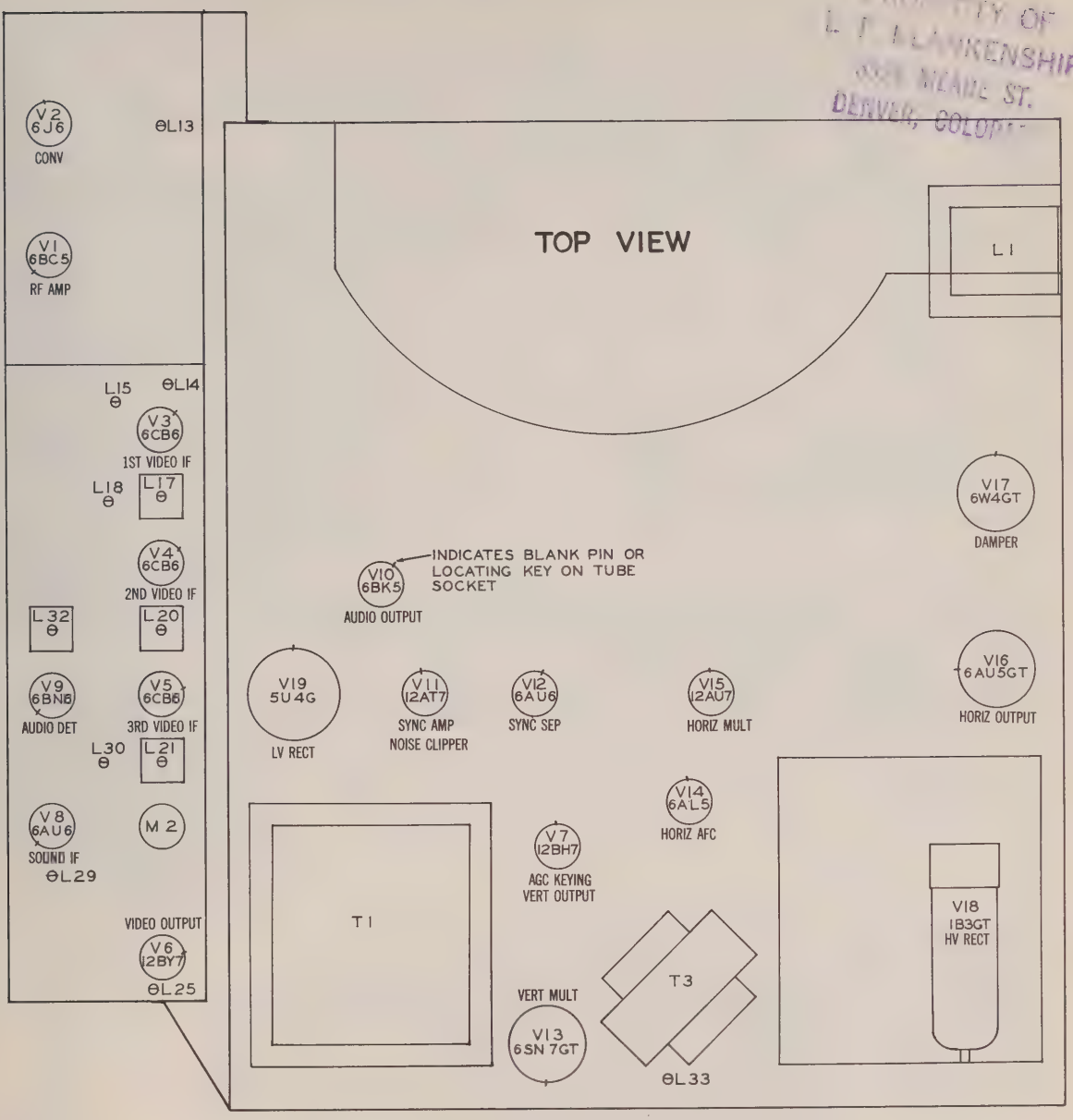


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5.
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster -V6, V20
Has pic, no sound-V8, V9, V10
Overloaded picture-V7

SYNC FAILURE
No vert. sync. -V12, V13
No horiz. sync. -V12, V14, V15
No vert. or horiz. sync. -V11, V12

SWEEP FAILURE
No raster, has sound-V15, V16, V17, V18, V20
No vertical deflection-V7, V13
Poor vert. linearity or foldover-V13, V17
Poor horiz. linearity or foldover-V15, V16, V17
Narrow picture-V15, V16, V17, V18, V19
Vert. off freq. -V12, V13
Horiz. off freq. -V12, V14, V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizonal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 9 Volt battery to the ungrounded side of C26. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6CB6 (V5). Low side to chassis.	44MC (10MC Swp)	42.25MC 43MC 45MC 45.75MC	Any	Vert. Amp. thru 47KΩ to point ⟨A⟩, with 470MMF across scope input. Low side to chassis.	A1, A2	Detune the plate circuit of V4 by connecting an alligator clip or similar clip to pin 5 of V4. (Caution B+). Adjust for maximum symmetrical response curve similar to Fig. 1.
2.	"	High side to pin 1 (grid) of 6CB6 (V4). Low side to chassis.	"	"	"	"	A3, A4	Move detuning clip to pin 5 of V3. Adjust for maximum symmetrical response curve similar to Fig. 2. Remove detuning clip.
3.	"	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	"	"	"	"	A5, A6	Adjust for maximum symmetrical response curve as in Fig. 3. If difficulty is experienced in obtaining desired response detune 47.25MC trap, by turning A10 counter-clockwise.
4.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	"	41.25MC 42.25MC 43.0MC 44.0MC 45.0MC 45.75MC	"	"	A7, A8 A9	Preset A9 fully clockwise. Starting from full counter clockwise position, adjust A7 for maximum response at 44MC, then adjust A8 for a symmetrical flat-top response as in Fig. 4. Adjust A9 for MINIMUM response at 41.25MC.
5.	"	"	"	47.25MC	"	"	A10	Increase scope gain and marker strength. Adjust for MINIMUM response at 47.25MC in areas where adjacent channel interference is not encountered adjust A10 to fully counter clockwise.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.001MFD	High side to point ⟨A⟩. Low side to chassis.	4.5MC (15KC Swp)	4.5MC	Any	Vert. Amp. across volume control.	A11, A12	Set generator output to give minimum useful indication on scope. Adjust A11 and A12 for maximum response centered about 4.5MC.
7.	"	"	"	"	"	"	A13	Set generator to give a strong signal and adjust A13 for maximum response at 4.5MC.
8.	"	"	Not used	4.5MC (400∿ Mod)	"	"	R4	Starting with a very low signal input gradually increase the level, at the same time rotating R4 back and forth until the signal level reaches the point where the AM output on scope dips to zero with a rise on each side as R4 is rotated. Set R4 for zero output at this signal level.

SOUND IF ALIGNMENT USING USING TV SIGNAL

Remove the dummy converter tube and replace the original 6J6 in its socket.
Tune receiver to a TV station and connect an attenuator between receiver and antenna so that the signal input to receiver can be varied from weak to strong.
Set the quieting control (R4) to the middle of its range.
Adjust A11 and A12 for maximum program sound. If peaks appear at two different slug settings use the one at farthest counter clockwise position.
Reduce the input signal to lowest useable level and check settings of A11 and A12.
Apply a strong signal and adjust A13 for maximum program sound. If two widely separated peaks appear use the one with A13 farthest counter clockwise.
If two peaks appear within a narrow range of adjustment, the signal strength being applied is too low or the quieting control is improperly adjusted.
Apply a very weak signal and adjust R4 for minimum noise. Do not leave R4 at maximum counter clockwise position.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.001MFD	High side to point ⟨A⟩ Low side to chassis.	Not used.	4.5MC (400∿Mod)	Any	Vert. Amp. thru detector probe (Fig. 5) to point ⟨B⟩. Low side to chassis.	A14	Adjust for MINIMUM 400∿ indication on scope.

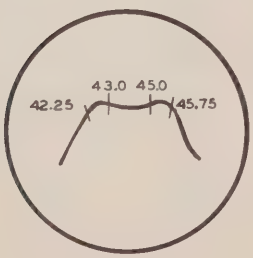


FIG. 1

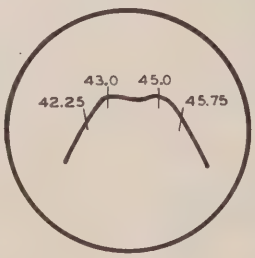


FIG. 2

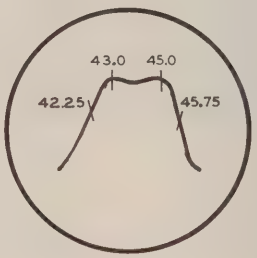


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Connect bias battery as under Video IF Alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna Terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC	13	Vert. Amp. thru 47KΩ to point (A). 470MMF across scope input. Low side to chassis.	A15	Adjust to place video marker at 50% as in Fig. 6.
11.	"	"	207MC (10MC Swp)	205.25MC	12			Check high band channels for correct video marker placement as in Fig. 6. If necessary make slight readjustment of A15 for best compromise on all channels.
			201MC (10MC Swp)	199.25MC	11			
			195MC (10MC Swp)	193.25MC	10			
			189MC (10MC Swp)	187.25MC	9			
			183MC (10MC Swp)	181.25MC	8			
			177MC (10MC Swp)	175.25MC	7			
12.	"	"	85MC (10MC Swp)	83.25MC	6	"	A16	Adjust to place video marker at 50% as in Fig. 6.
13.	"	"	79MC (10MC Swp)	77.25MC	5	"		Check low band channels for correct video marker placement as in Fig. 6. If necessary make slight readjustment for best compromise on all channels.
			69MC (10MC Swp)	67.25MC	4			
			63MC (10MC Swp)	61.25MC	3			
			57MC (10MC Swp)	55.25MC	2			

RF ALIGNMENT

The RF and Mixer portions of this receiver have been properly aligned at the factory and are very stable. Alignment of these portions should not be required in the field.

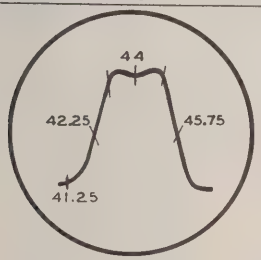


FIG.4

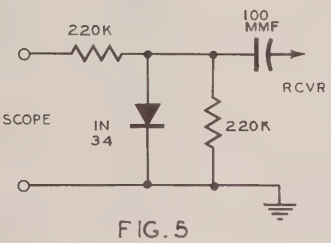


FIG.5

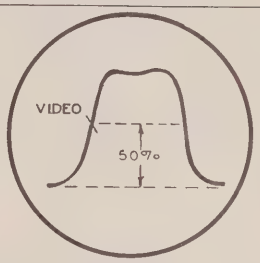
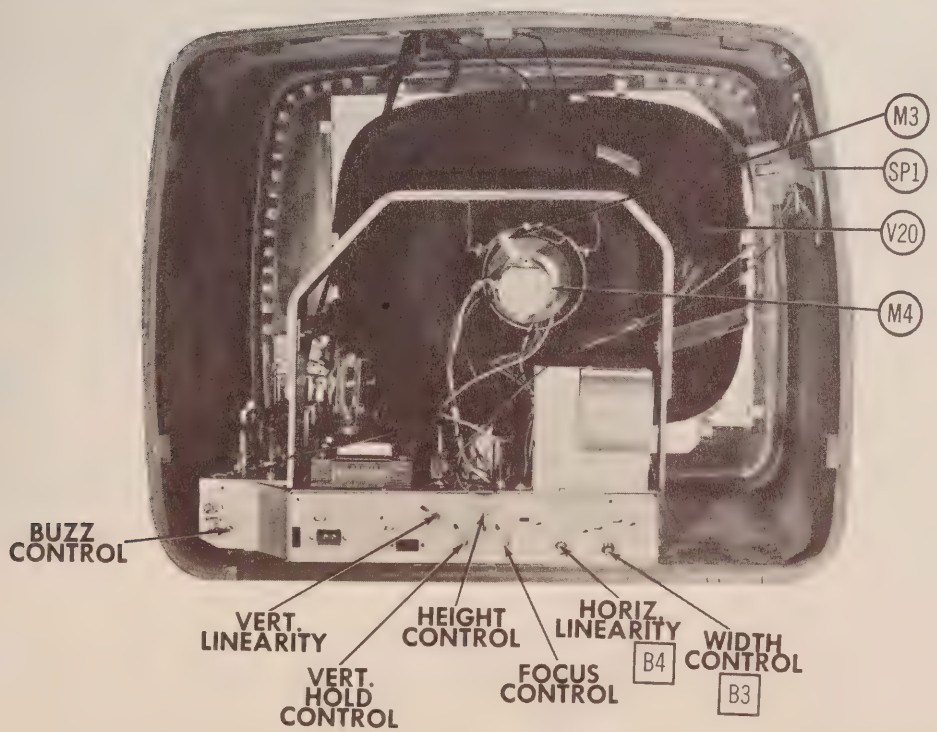


FIG.6

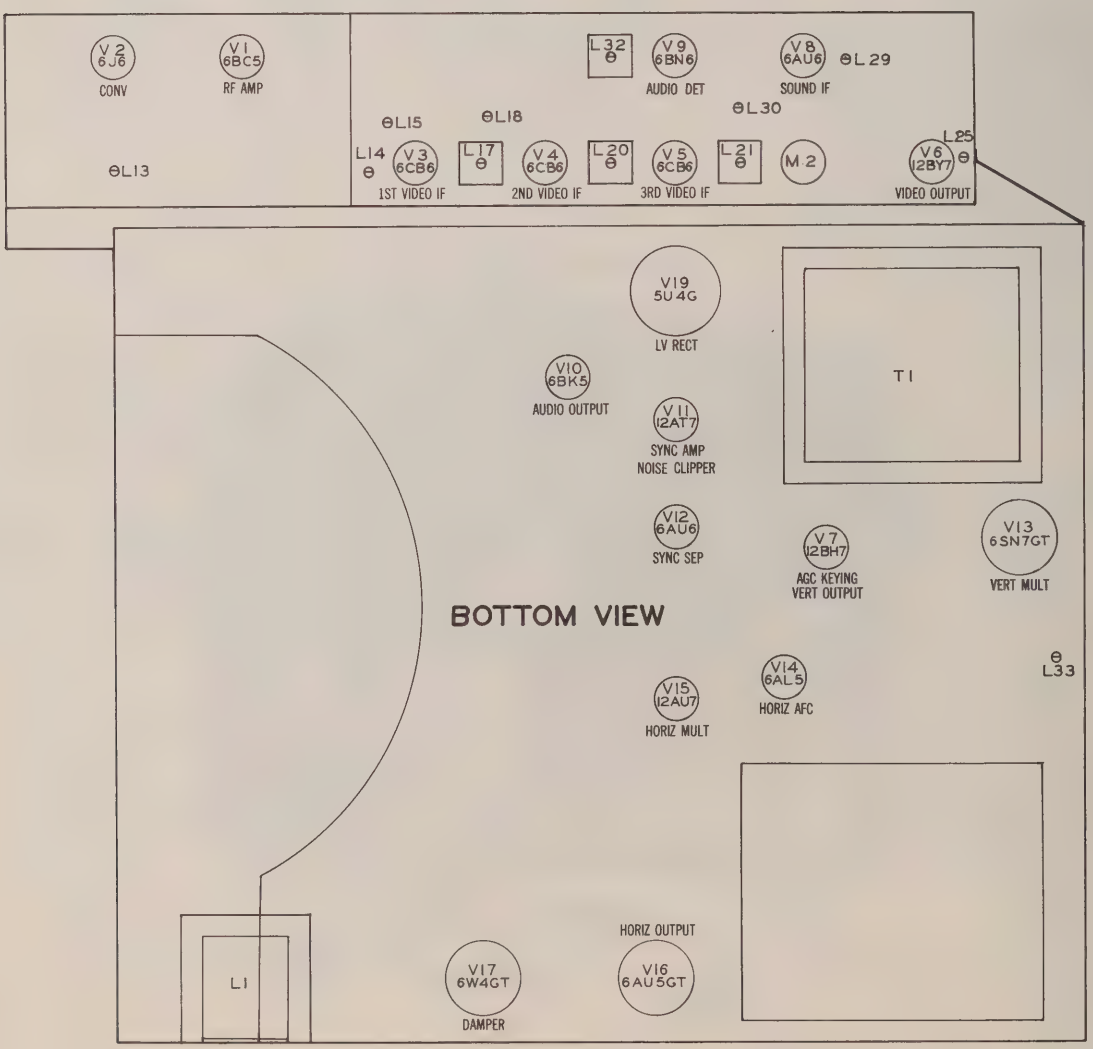


CABINET-REAR VIEW

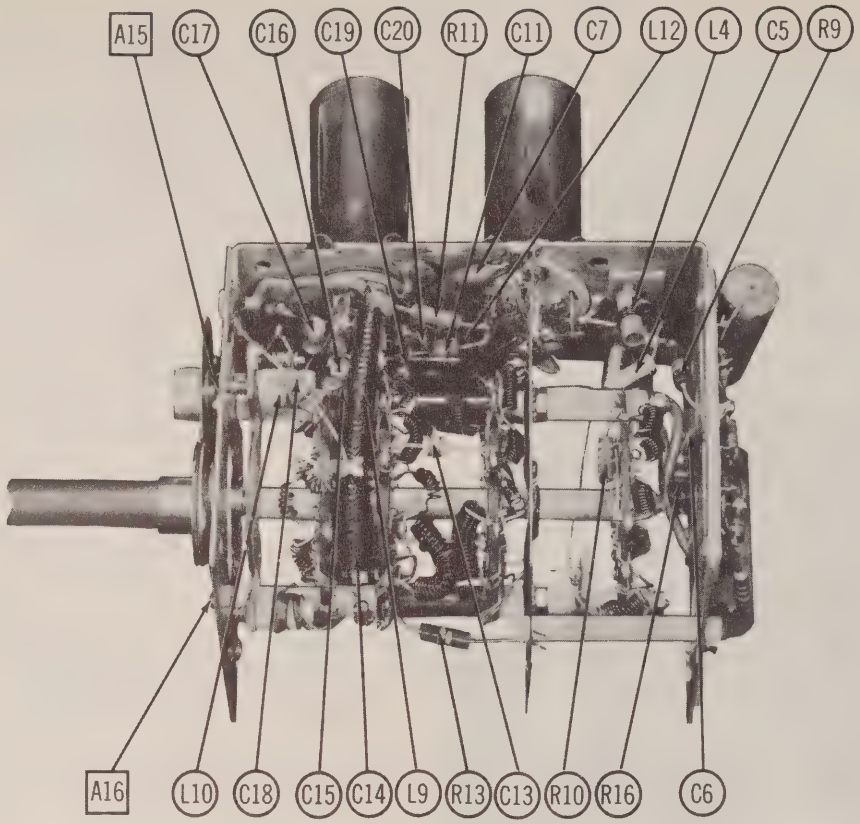
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.6Meg	0Ω	0Ω	.1Ω	† 3.6KΩ	† 5.8KΩ	0Ω		
V 2	6J6	†11KΩ .Ω	† 3.6KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	43KΩ	68Ω	.1Ω	0Ω	† 6.4KΩ	† 6.4KΩ	0Ω		
V 4	6CB6	43KΩ	68Ω	.1Ω	0Ω	† 4.2KΩ	† 4.2KΩ	0Ω		
V 5	6CB6	.4Ω	150Ω	.1Ω	0Ω	† 4.6KΩ	† 4.6KΩ	0Ω		
V 6	12BY7	200Ω	3.3KΩ	0Ω	.1Ω	.1Ω	0Ω	† 4.1KΩ	† 3KΩ	0Ω
V 7	12BH7	110KΩ	†12KΩ	† 3KΩ	.1Ω	.1Ω	#11.6KΩ	2.2Meg	570Ω	0Ω
V 8	6AU6	1.2Ω	0Ω	.1Ω	0Ω	† 4.2KΩ	† 4.2KΩ	120Ω		
V 9	6BN6	290Ω	1.4Ω	.1Ω	0Ω	† 7.7KΩ	4.2Ω	†330KΩ		
V 10	6BK5	3.4KΩ	INF.	350Ω	.1Ω	0Ω	120Ω	350Ω	† 2.7KΩ	INF.
V 11	12AT7	† 7KΩ	15KΩ	0Ω	.1Ω	.1Ω	680KΩ	680KΩ	0Ω	0Ω
V 12	6AU6	1Meg	0Ω	0Ω	.1Ω	37KΩ	165KΩ	0Ω		
V 13	6SN7GT	7 80KΩ	#500KΩ	1.2KΩ	60KΩ	†100KΩ	1.2KΩ	.1Ω	0Ω	
V 14	6AL5	1Meg	0Ω	0Ω	.1Ω	1Meg	0Ω	2Meg		
V 15	12AU7	† 83KΩ	2.7Meg	820Ω	.1Ω	.1Ω	#300KΩ	350KΩ	820Ω	0Ω
V 16	6AU5GT	470KΩ	.1Ω	33Ω	INF	#52Ω	INF	0Ω	†12KΩ	
V 17	6W4GT	INF.	INF.	40KΩ	INF	† 52Ω	INF	0Ω	.1Ω	
V 18	1B3GT	PINS 1 TO 8 HAVE INF. RESISTANCE								TOP CAP #562Ω
V 19	5U4G	INF.	24KΩ	INF.	31Ω	INF.	29Ω	INF.	24KΩ	
V 20	20HP4A	0Ω	1.5Meg	PIN 6 #35KΩ	PIN 10 #33KΩ	PIN 11 140KΩ	PIN 12 .1Ω			

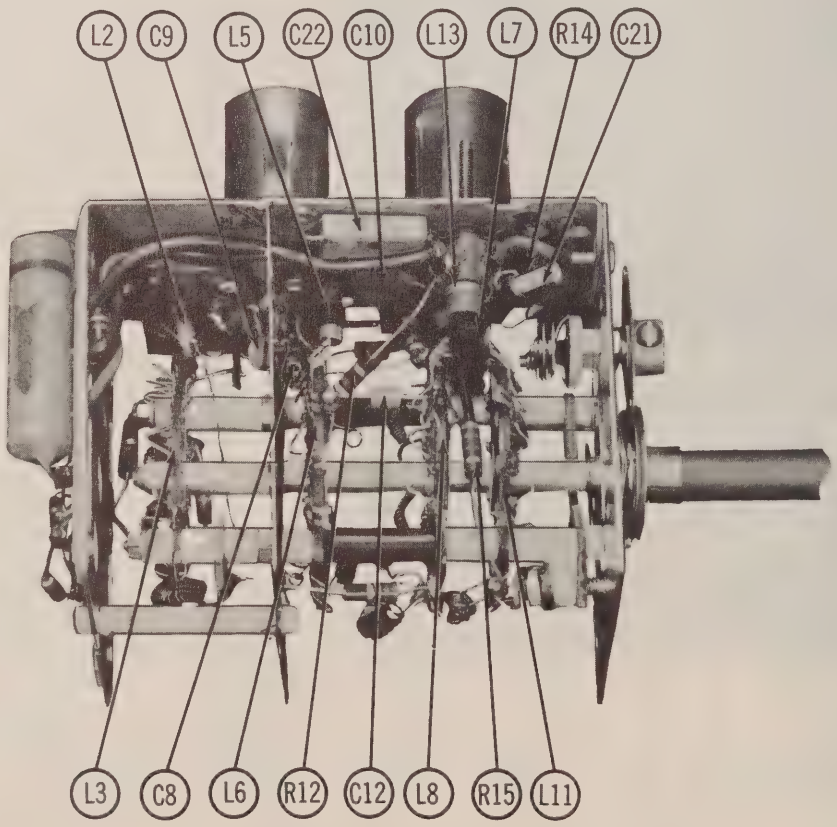
† MEASURED FROM PIN 8 OF V19.
# MEASURED FROM PIN 3 OF V17.



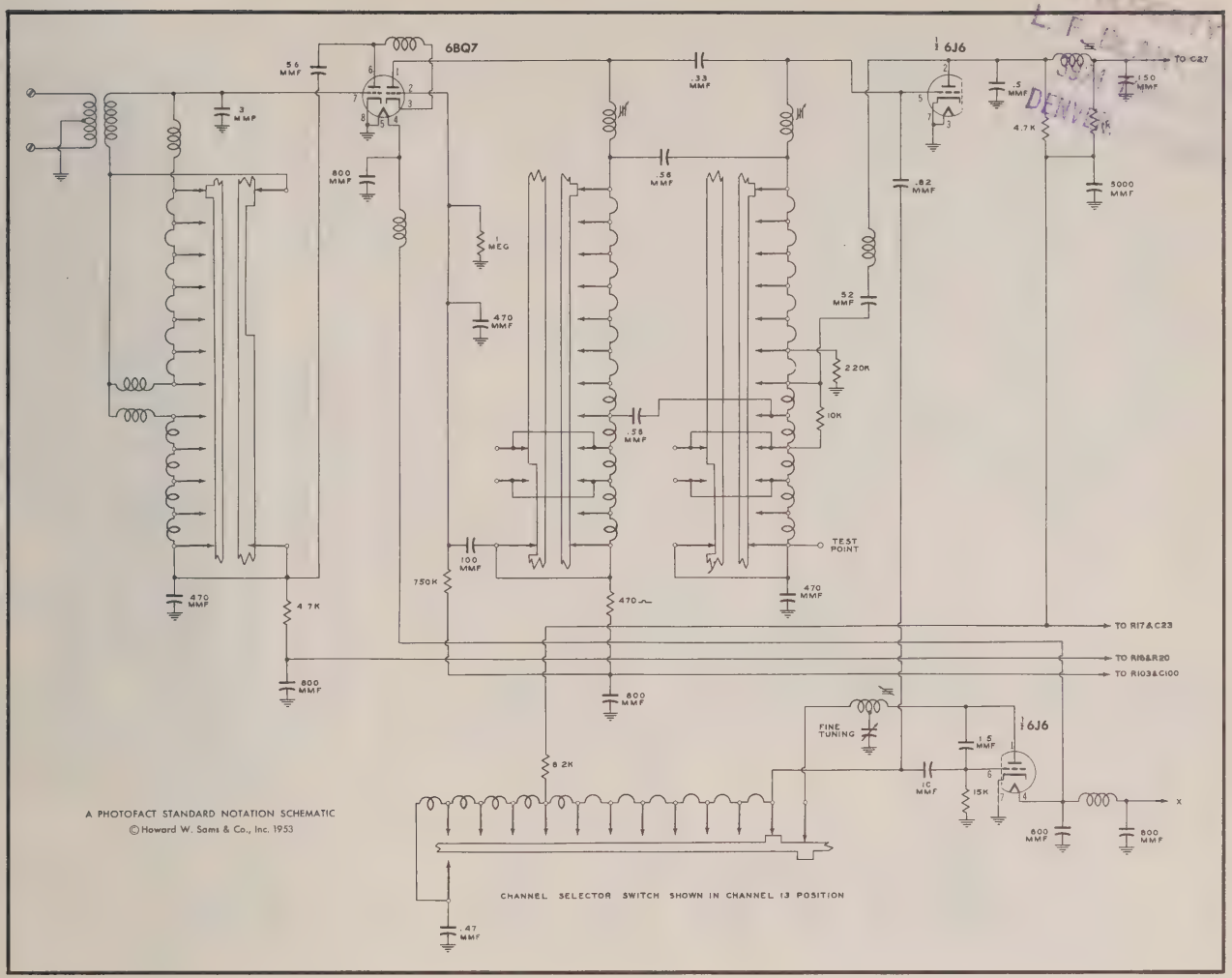
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



ALTERNATE TUNER SCHEMATIC

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Rotate the horizontal hold control through its sync range and note whether the middle of the sync range corresponds approximately to the middle of the mechanical range. If it does not, make the following adjustments:

1. Short out the horizontal oscillator coil, L33, with a short jumper wire.
2. Set the horizontal hold control to the center of its mechanical range.
3. Connect the DC probe of a VTVM to the junction of R80 and C84. Connect the common lead to chassis.
4. Adjust the horizontal multivibrator trimmer (B2) for zero reading on VTVM. If zero can be approached, but not quite reached it may be necessary to reset the horizontal hold control slightly to one side of mid-range so that zero reading can be obtained on the VTVM.
5. Remove the jumper from across the horizontal oscillator coil.
6. Adjust the horizontal oscillator slug (B1) for zero reading on VTVM.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.
Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push on type control knobs from front panel.
2. Disconnect built-in antenna and transmission line from rear cover.
3. Remove 10 wood screws. Remove rear cover.
4. Disconnect speaker. Remove 2 speaker nuts. Remove speaker.
5. Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	12BY7	12BY7	9BF	
V7	AGC Keying - Vert. Output	12BH7	12BH7	9A	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Audio Detector	6BN6	6BN6	7DF	
V10	Audio Output	6BK5	6BK5	9B	
V11	Sync Amplifier - Noise Clipper	12AT7	12AT7	9A	
V12	Sync Separator	6AU6	6AU6	7BK	
V13	Vert. Mult.	6SN7GT	6SN7GT	8BD	
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	12AU7	12AU7	9A	
V16A	Horiz. Output	6AU5GT	6AU5GT	6CK	
B	Horiz. Output	6AV5GT	6AV5GT	6CK	
C	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	
V19	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V20A	20HP4A	20HP4A	12C	① Circuit change necessary
B	16AEP4	20HP4 ①	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No	NOTES
C1A	▲40	450	V-9801	AFH4-93		D092		FP428.4	TVL-4720	
B	▲40	450								
C	▲30	350								
D	30	350								
C2A	▲10	450	V-10306-1	AFH3-140		C104		FP385	TVL-3753	
B	▲20	450								
C	▲150	50								
C3	10	450	V-10293-1	PBH450/10		BR1045A		TC72	TVA-1705	
C4	10	450	V-10293-1	PBH450/10		BR1045A		TC72	TVA-1705	
C5	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C6	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C7	470			BPD-00047	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C8	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C9	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C10	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C11	.3									
C12	.47									
C13	1.5			SI1.5MP0	TCZ-1.5		NP0K-1R5	ZT5515	5TCCB-V15	
C14	62									
C15	.39									
C16	10			SI10M750	TCN-10		N750K-100 N330K-1R5	NT-511	5TCU-Q1	
C17	1.5									
C18	.51									
C19	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C20	800		V-9681-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C21	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C22	180	500								
C23	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C24	.05	400	RCP1DW4503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C25	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C26	.05	400	RCP1DW4503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C27	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C28	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C29	12		R3CC20BL120K	SI12	D6-120		GP1K-120	UC-5412	5GA-Q12	Note 2
C30	1.5		V-5658-1		TCZ-1		NP0K-010		5TCCB-V1	Note 3
C31	12		R3CC20BL120K	SI12	D6-120		GP1K-120	UC-5412	5GA-Q12	
C32	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C33	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C34	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C35	1.5		V-5658-1		TCZ-1		NP0K-010		5TCCB-V1	
C36	12		R3CC20BL120K	SI12	D6-120		GP1K-120	UC-5412	5GA-Q12	
C37	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C38	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C39	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C40	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C41	800		V-9683-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C42	3.3		V-9928-3	SI3.3NP0	TCZ-3.3		NP0K-3R3	ZT-5533	5TCCB-V33	
C43	12		R3CC20BL120K	SI12	D6-120		GP1K-120	UC-5412	5GA-Q12	
C44	5		V-9928-5	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C45	470	500	RCM20B471K	1469-00005		5R5T5		MCB245	MS-315	
C46	1				TCZ-1		NP0K-010		5TCCB-V1	Note 1
C47	56	500	RCM20B560K							
C48	.1	400	RCP1DW4104M	P488-1	DF-104	PTK4P1		PT401	4TM-P1	
C49	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C50	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C51	100	500	RCM20B101K	1469-00021		5R5T1		MCB235	MS-31	
C52	.5	400	RCP1DW4504M	484-5		PJ4P5		PT405	4TM-P5	
C53	2.2		V-9928-5		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C54	5		V-9928-5	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C55	150	500	RCM20B151K	1469-00015		5R5T15		MCB236	MS-315	
C56	.002	600	RCP1DW6202M	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C57	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C58	47	500	RCM20B470K	1469-00005		5R5Q5		MCB225	MS-45	
C59	47	500	RCM20B470K	1469-00005		5R5Q5		MCB225	MS-45	
C60	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	

Note 1. Some Models use 6.8MMF in this application (Part #V-5658-1).
Note 2. Chassis V-2220-3 and V-2230-11 use 3.3MMF in this application (Part #V-9928-3).
Note 3. Chassis V-2230-3 and V-2220-11 use .47MMF in this application (Part #V-5658-1).
Note 4. Chassis V-2220-3 and V-2220-11 use .1MFD in this application (Part #RC10W4104M).
Note 5. Used in Chassis V-220-8 and V-2232-11.
• Items C71A, C71B, C71C, C71D, R64A, R64B, R64C and R64D are combined in one unit.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C 61	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C62	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C63	.02	400	RCP10W4203M	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C64	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C65	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C66	.25	400	RCP10W4254M	P488-25		PTE4P25		PT4025	4TM-P25	Note 4
C67	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C68	270	500	RCM20B271K	1469-00004	D6-271		5W5T1	GP2K-271	MC241	1FM-33
C69	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C70	.1	400	RCP10M4104M	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C71A	.01			P488-01		PTE6S1	GP2-333-103	PT611	6TM-S1	
B	.002		eV-11193-1	BPD-002	ePC-101	TM5D2	801-002	DC-522	5HK-D2	
C	.005			BPD-005		TM5D5	81L-005	DC-525	5HK-D5	
D	.005			BPD-005		TM5D5	81L-005	DC-525	5HK-D5	
C72	.01	500	RCP10W4103K	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C73	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C74	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C75	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C76	.1	600	RCP10M6104M	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C77	100	500	RCM20B101K	1468-0001	D6-101		5W5T1	GP1K-101	MC235	1FM-31
C78	100	500	RCM20B101K	1468-0001	D6-101		5W5T1	GP1K-101	MC235	1FM-31
C79	330	500	RCM20B331K	1469-00025			5R5T1		MCB235	MS-31
C80	680	500	RCM20B681K	1470-0007			2R5T7		MS-37	
C81	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C82	.005	400	RCP10W4502M	P488-05	D6-502	PTE4D5	GP2-333-502	PT625	6TM-D5	
C83	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C84	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C85	100	500	RCM20B101K	1469-0001			5R5T1		MCB235	MS-31
C86	3300	500	RCM30C332K	1464-0004			1DR5D4		MC5463	MS-34
C87	.1	400	RCP10W4104M	P488-1	DF-104		PTE4P1		PT401	4TM-P1
C88	100	500	RCM20B101K	1469-0001			5R5T1		MCB235	MS-31
C89	.1	400	RCP10M4104M	P488-1	DF-104		PTE4P1		PT401	4TM-P1
C90	820	500	RCM20C821K							
C91	.01	500	RCP10M6103M	P688-01	D6-103		PTE6S1	GP2-333-103	PT611	6TM-S1
C92	500		V-5596	BPD-005	DD-502		TM5D5	81L-005	DC-525	5HK-D5
C93	.1	300	RCP10M4104M	P688-1	DF-104		PTE6P1		PT601	6TM-P1
C94	.1	600	RCP10W4104M	P488-1	DF-104		PTE4P1		PT401	4TM-P1
C95	.06	600	RCP10M6603M	P688-06			PTE6S6		PT616	6TM-S6
C96	.06	600	RCP10M6603M	P688-06			PTE6S6		PT616	6TM-S6
C97	.25	400	RCP10W4254M	P488-25			PTE4P25		PT4025	4TM-P25
C98	500	10000	V-9801-3	HV30C	TV3-502	MM-C20TS	413-501			20DK-T5
C99	.01	500	V-5040-15	6892GXY-01		P26B1		PT611		6TM-S1
C 100	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	Note 5

Note 1. Some Models use 6.8MMF in this application (Part #V-5658-1).
Note 2. Chassis V-2220-3 and V-2230-11 use 3.3MMF in this application (Part #V-9928-3).
Note 3. Chassis V-2230-3 and V-2220-11 use .47MMF in this application (Part #V-5658-1).
Note 4. Chassis V-2220-3 and V-2220-11 use .1MFD in this application (Part #RC10W4104M).
Note 5. Used in Chassis V-220-8 and V-2232-11.
• Items C71A, C71B, C71C, C71D, R64A, R64B, R64C and R64D are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	½	V-9877-4	QJ-382•	RTY-288	5BBT-704-8	UF152L	Picture-Panel-Note 1 & 4
B	500KΩ						UR55-T54	Volume Tap ② 50KΩ-Rear
C	Switch						U8-28	Attach to R1A
R2A	50KΩ	½	V-10914-1	QJ1-123	AG-44-8	AB-31	U-35	Brightness-Note 2
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	125KΩ	½	V10915-1	QJ1-228	AG-53-8	AB-40	U-415	Horiz. Hold-Note 3
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R3A
R4	500Ω	1	V-11345-2					Buzz-Wire Wound
R5A	500Ω	½	V-6403	QJ1-114	AG-19-8	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R5A
R6A	750KΩ	½	V-9894-3	QJ1-130	AG-61-8	AB-49	SU-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R6A
R7A	250KΩ	½	V-9813-4	QJ1-130	AG-55-8	AB-50	SU-46	Height
B	Shaft		Not Req.	Not Req.	FK8-1/4	AK-1	Not Req.	Attach to R7A
R8A	2 Meg	½	V-9894-2	QJ1-139	AG-83-8	AB-75	SU-56	Focus
B	Shaft		Not Req.	Not Req.	KS8-3	AK-1	Not Req.	Attach to R8A

• CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS, B17-109 & P1-212 (Rear)
VB18-1332 & R2-226 (Rear) & SWITCH 76-1.

Note 1. Chassis No. V-2207-1 used alternate control (PartNo. V-9877-1).
Note 2. Chassis No. V-2207-1 used alternate control (Part No. V-9916-1).
Note 3. Chassis No. V-2207-1 used alternate control (Part No. V-10500-1).
Note 4. Chassis No. V-2220-2 used alternate control (Part No. V-9877-5).

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	NOTES
R9	115Ω	½			
R10	2200Ω	½		BTS-2200	
R11	2200Ω	½		BTS-2200	
R12	470Ω	½		BTS-470	
R13	220KΩ	½			
R14	15KΩ	½			
R15	820Ω	½			
R16	470Ω	½		BTS-470	
R17	150Ω	½	RC20AE151K	BTS-150	
R18	5.6Meg	½	RC30AE565K	BTS-5.6Meg	
R19	12KΩ	½	RC30AE123K	BTS-12K	
R20	1.2Meg	½	RC30AE125K	BTS-1.2Meg	
R21	68KΩ	½	RC30AE683K	BTS-68K	
R22	33KΩ	½	RC20AE333K	BTS-33K	
R23	10KΩ	½	RC30AE103M		
R24	10Ω	½	RC30AE100K		
R25	68Ω	½	RC20AE680K		
R26	2700Ω	½	RC20AE272K	BTS-2700	
R27	10KΩ	½	RC20AE103M	BTS-10K	
R28	4700Ω-5%	½	V-9927-2	BTS-4700-5%	
R29	68Ω	½	RC20AE680K		
R30	470Ω	½	RC20AE271M	BTS-470	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	NOTES
R31	4700Ω-5%	½	V-9927-2	BTS-4700-5%	
R32	150Ω	½	RC20AE151K	BTS-150	
R33	470Ω	½	RC30AE471M	BTS-470	
R34	220Ω	½	RC30AE221K	BTS-220	
R35	12KΩ	½	RC20AE123K	BTS-12K	
R36	3300Ω	½	RC20AE332K	BTS-3300	
R37	22Ω	½	RC20AE220K		
R38	22KΩ	½	RC20AE223K	BTS-22K	
R39	270KΩ	½	RC20AE274K	BTS-270K	
R40	6200Ω	2	RC40AE622K	BTB-6200	
R41	6200Ω	2	RC40AE622K	BTB-6200	
R42	270KΩ	½	RC20AE274K	BTS-270K	
R43	1.5Meg	½	RC30AE105K	BTS-1.5Meg	
R44	68KΩ	½	RC30AE683K	BTS-68K	
R45	120Ω	½	RC20AE121K	BTS- 120	
R46	1200Ω	½	RC20AE122K	BTS-1200	
R47	4700Ω	1	RC20AE472K	BTS-4700	
R48	470Ω	½	RC20AE471M	BTS-470	
R49	330KΩ	½		BTS-330K	
R50	10KΩ	½	RC30AE103M	BTS-10K	
R51	120Ω	½	RC20AE121K	BTS-120	
R52	2700Ω	5	V-6984-8		

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	NOTES
R53	4700Ω	½	RC20AE472K	BTS-4700	
R54	470KΩ	½	RC20AE474K	BTS-470K	
R55	680KΩ	½	RC20AE684K	BTS-680K	
R56	3900Ω	½	RC20AE392K	BTS-3900	
R57	220KΩ	½	RC20AE224K	BTS-220K	Note 3
R58	1 Meg	½	RC20AE105K	BTS-1 Meg	Note 4
R59	100KΩ	½	RC20AE104K	BTS-100K	
R60	390KΩ	½	RC20AF394K	BTS-390K	
R61	220KΩ	½	RC20AE224K	BTS-220K	
R62	27KΩ	½	RC20AE273K	BTS-27K	
R63	10KΩ	½	RC20AE103K	BTS-10K	Note 5
R64A	22KΩ			BTS-22K	
B	22KΩ			BTS-22K	
C	82Ω		• V-11193-1	BTS-82Ω	
D	8200Ω			BTS-8200	
R65	100KΩ	½	RC30AE104K	BTA-100K	
R66	1200Ω	½	RC20AE122K	BTS-1200	
R67	5600Ω	½	RC20AE564K	BTS-5600	
R68	100KΩ	½	RC20AE104K	BTS-100K	
R69	39KΩ	½	RC20AE393K	BTS-39K	
R70	100KΩ	½	RC20AE104K	BTS-100K	
R71	2.2Meg	½	RC20AE225K	BTS-2.2Meg	
R72	470Ω	½	RC20AE471K	BTS-470	
R73	10KΩ	½	V-6984-5		
R74	6800Ω	½	RC20AE682K	BTS-6800	
R75	3300Ω	½	RC20AE332K	BTS-3300	
R76	1 Meg	½	RC20AE105K	BTS-1 Meg	
R77	1 Meg	½	RC20AE105K	BTS-1 Meg	
R78	220KΩ	½	RC20AE224K	BTS-220K	

• Items R64A, R64B, R64C, N64D, C71A, C71B, C71C, C71D are combined in one unit.
Note 1. Used only in chassis No. V-2220-2.
Note 2. Chassis #V-2220-2 uses a 22K Ω resistor in this application.
Note 3. Chassis # V-2220-2 uses a 470KΩ resistor in this application.
Note 4. Chassis # V-2220-2 uses a 100KΩ resistor in this application.
Note 5. Chassis # V-2220-2 used a 6800Ω resistor in this application.
Note 6. Used only in chassis No. V-2220-2.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	652VCT	5VAC	6.3VAC	V-9958-2	P-3066	TP-324	R-50BC	
	@1.92A	.230ADC	@3A	@6.25A					
				SEC. 4					
				6.3VAC					
				@6.26A					

* Secondary #3 and #4 is a 12.6VCT winding.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Westinghouse PART No.	STANCOR PART No.	MERIT PART No	CHICAGO PART No	TRIAD PART No	NOTES
T2	542Ω	12.8Ω tap	A-8130 ①	HVO-10 ②	TFB-5 ③	D-14 ④		Horiz. Output Trans.
	tap ②-70Ω	@.8Ω,						
	32Ω	.8.8Ω						
		SEC. 2						
		0Ω						
T3	1600Ω		V-10909-1	A-8141	A-3039	TSO-12	A-104X	Vert. Output Trans.
	tap ③70Ω							
T4A	12.5Ω		V-10911-3 ④	DY-8A ⑤	MDF-70 ⑥	TY-5	Y-17 ⑦	Horiz. Deflection Coil
B	57.0Ω		V-10911-1 ④					
			V-10911-4 ④					

① Use with Width Coil WC-5.
② Drill new mounting hole.
④ Use width coil (with AGC winding) with approx. range of 4-29 Milliheries
⑤ Use with Width Coil WC-11.
⑥ Alternate Horiz. Output Trans.
⑦ Yoke Assy. contains Yoke V-10536-6.
① On Chassis V-2220-1, use original Horiz. Deflection Coil Shunt Capacitor 33MMF.
② Alternate Deflection Yoke Assy. contains Yoke V-10538-1.
③ Alternate Deflection Yoke Assy. contains Yoke V-10538-7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T5	4.8KΩ	3.3Ω	364Ω	.62Ω	V-9982-2	A-3877	A-2930	RO-9 ①	S-3X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Westinghouse PART No.	JENSEN PART No	QUAM PART No.	NOTES
SP1	5-1/4"	PM	3.3Ω	V-10030-1	ST-803 Mod. P525V	52A1	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 ^C/T	REPLACEMENT DATA: Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.230A	40Ω	1.5H	V-1671-2	C-2326 ①	C-2991 ①	TR-1733 ①	C-23X ①

① Drill one new mounting hole.

WESTINGHOUSE MODELS H-706T16 (Ch. V-2207-1), H-708T20 (Ch. V-2220-1, -3, -11), H-718K20, H-724T20, H-725T20 (Ch. V-2220-2)

PARTS LIST AND DESCRIPTIONS (Continued)

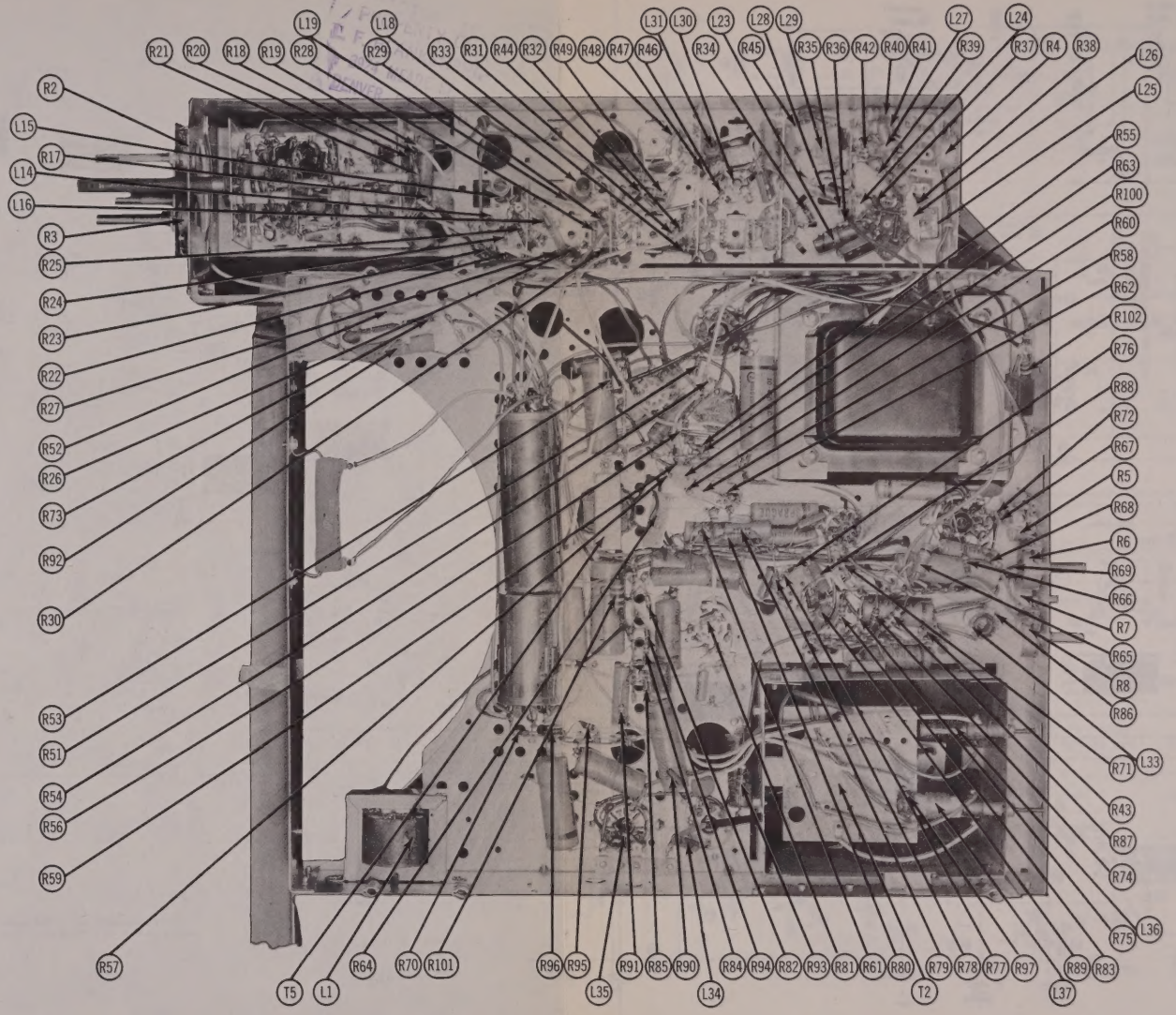
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	0Ω	0Ω				Pri. tapped; Low Channel Secondary - 0Ω
L3	Ant. Coils	0Ω					
L4	Ant. Coil	0Ω					Channel 13.
L5	RF Coil	0Ω					Channel 13.
L6	RF Coils	0Ω					
L7	Mixer Grid Coil	0Ω					Channel 13.
L8	Mixer Grid Coils	0Ω					
L9	Feedback Coil	0Ω					
L10	Osc. Plate Coil	0Ω					Channel 13.
L11	Osc. Coils	0Ω					
L12	Fil. Choke	0Ω					
L13	Conv. Plate	.2Ω					
L14	1st Video IF	0Ω		V-9882-6 *			
L15	Sound Trap	0Ω		V-10771-1			
L16	Fil. Choke	0Ω		V-4886-2			1.1 Microhenries.
L17	2nd Video IF	.4Ω	.4Ω	V-9879			
L18	Adj. Channel Sound Trap	0Ω		V-10771-1			
L19	Fil. Choke	0Ω		V-4886-2			1.1 Microhenries.
L20	3rd Video IF	.4Ω	.4Ω	V-9879			
L21	4th Video IF	.4Ω	.4Ω	V-9880			
L22	Series Peaking Coil	1.2Ω		V-4886-1	TV-180		14 Microhenries.
L23	Series Peaking Coil	6.5Ω		V-9915-1	TV-181		100 Microhenries.
L24	Shunt Peaking Coil	1.2Ω		V-4886-1	TV-180		14 Microhenries.
L25	4.5MC Trap	1.2Ω		V-9882-3	TV-151		
L26	Series Peaking Coil	5.4Ω		V-5902-1	TV-184		140 Microhenries.
L27	Shunt Peaking Coil	12Ω		V-5902-5	TV-185		250 Microhenries.
L28	Fil. Choke	0Ω		V-4886-2			1.1 Microhenries.
L29	1st Sound IF	1.2Ω		V-9882-5	TV-151		
L30	2nd Sound IF	1.8Ω		V-9882-2	TV-151		
L31	RF Choke	14Ω		V-9915-2			350 Microhenries.
L32	Quadrature Coil	4.2Ω		V-11396-1			
L33	Horiz. Osc.	90Ω		V-6764	TV-163		
L34	RF Choke	2.2Ω		V-9099-5		CLA	2.7 Microhenries.
L35	RF Choke	0Ω		V-4886-2			1.1 Microhenries.
L36	Horiz. Lin.	20Ω		V-9960	MWC-1		
L37	Width Coil	1Ω	95Ω	V -9902			
L38	Fil. Choke	2.2Ω		V-9099-5		CLA	2.7 Microhenries.

* Chassis V-2220-2, V-2220-3, and V220-11 use Part No. V-9882-7 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M1A	RF Tuner	V-11385-1	Uses 6BC5 RF Amplifier
B	RF Tuner	V-11485-1	Use 6BQ7 or 6BZ7 RF Amplifier
M2	Crystal Diode	V-10916-1	Video Detector
M3	Centering Magnet		Mounted on Yoke-Rear Cover
M4	Ion Trap	V-9784-4	
B2	Trimmer	V-11228-1	Horiz. Multivibrator, 5-40MMF
	Cabinet	V-1213-5	Model H-706T16
	Cabinet	V-1279-1	Model H-708T20
	Cabinet	V-1283-6	Model H-718K20
	Cabinet	V-1284-5	Model H-724T20
	Cabinet	V-1284-1	Model H-725T20
	Back Cover Assy.	V-10928-4	Model H-706T16
	Back Cover Assy.	V-11410-1	Model H-708T20
	Back Cover Assy.	V-10962-11	Models H-718K20, H-724T20 & H-725T20
	Escutcheon	V-9953-2	Model H-706T16
	Safety Glass	V-11384-1	Model H-706T16
	Safety Glass	V-11395-1	Model H-708T20
	Safety Glass	V-11462-1	Models H-718K20, H-724T20 & H-725T20
	Mask	V-10777-1	Model H-706T16
	Mask	V-11441-2	Model H-708T20
	Mask	V-11474-2	Models H-718K20, H-724T20 & H-725T20
	Knob	V-9938-1	Off/On Volume,
	Knob	V-9939-1	Picture,
	Knob	V-9940-1	Fine Tuning,
	Knob	V-10926-1	Horiz. Hold, Brightness, Models H-708T20, H-718K20, H-724T20, & H-725T20
	Knob	V-9941-1	Channel Selector, Model H-706T16
	Knob	V-10676-1	Channel Selector, Models H-708T20, H-718K20, H-724T20 & H-725T20.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION